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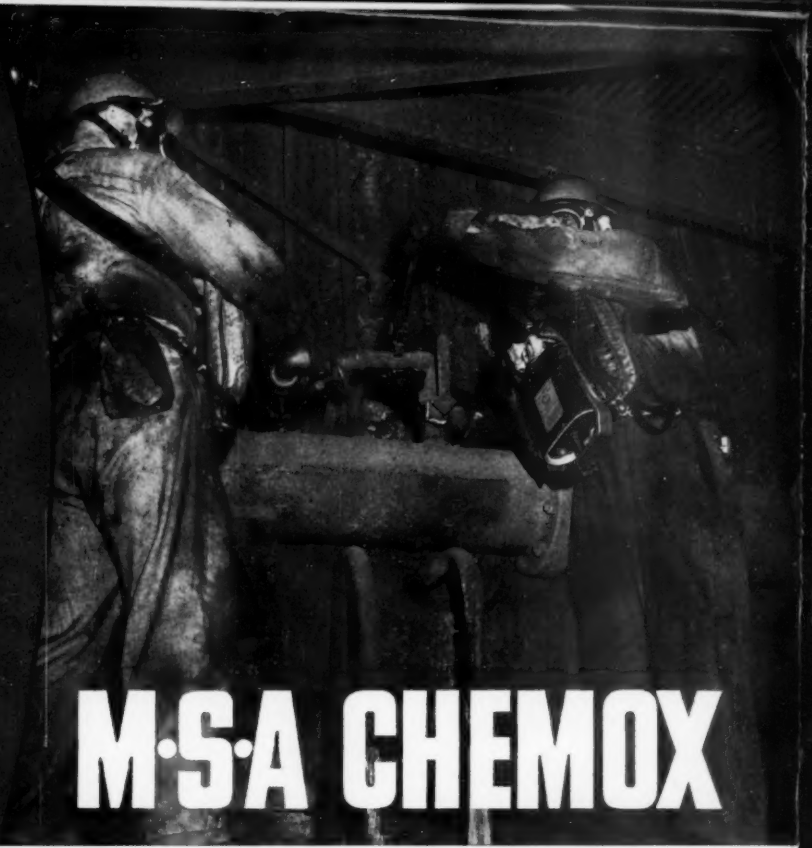

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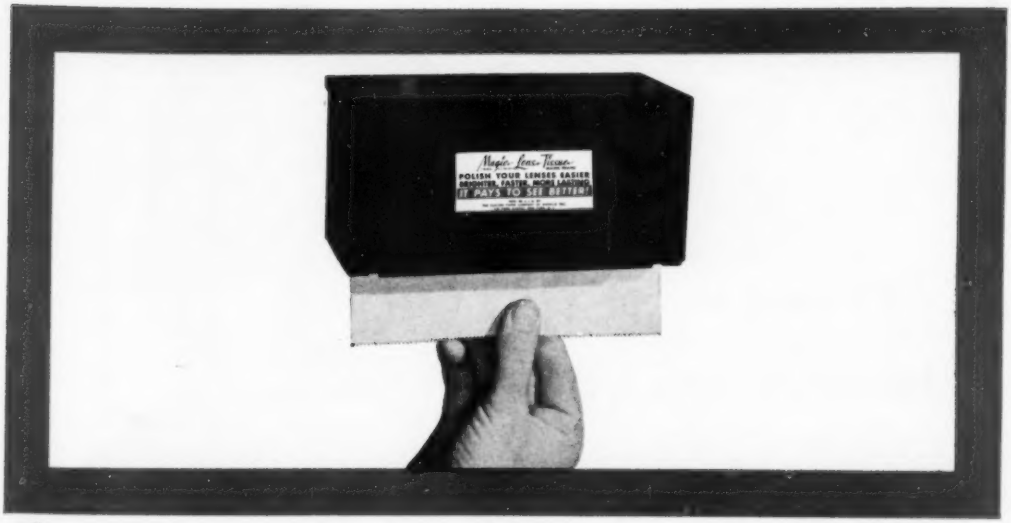

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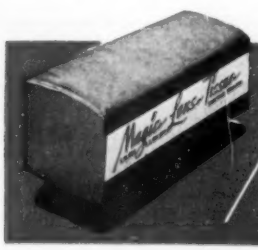

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President, The B. F. Goodrich Company

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By their rapidly mounting participation in the Payroll Savings Plan, Americans *are* saving for their personal security, fighting the menace of inflation and making a major contribution to America's defense against aggression. In Mr. Collyer's own company 80% of the 38,000 employees throughout the company have already enrolled in the Plan, with two large divisions still to report.

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• In the steel industry campaign, Carnegie-Illinois Steel Corporation (now U. S. Steel Company), recently raised its payroll participation from 18% of 100,000 employees to 77% . . . Columbia Steel Company of California went from 7.9% to 85.2% . . . American Bridge Company signed 92.8% of the workers in the large Ambridge plant . . . 87% of Allegheny-Ludlum Steel Corporation's 14,000 employees are now on the Payroll Savings Plan . . . Crucible Steel Company of America, reinstating its plan, signed up 65% of its 14,500 employees.

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- **Greater safety**
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For those who may not *Remember*

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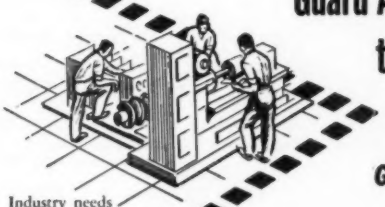

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FORMERLY "SAFETY ENGINEERING"

The Magazine of Safety

Reg. U. S. Pat. Off.

A MONTHLY PUBLICATION DEDICATED TO ACCIDENT PREVENTION, MAINTENANCE, HEALTH CONSERVATION AND FIRE CONTROL FOR EFFICIENT PRODUCTION.
EST. 1901

VOL. 102, NO. 2 AUGUST, 1951

EDITORIALS

Knowledge Must Be Applied 10
Summer Hazard 10

★ ★ ★

The Maintenance Problem of the Small Plant ..... by W. C. ZINCK 15
Fire Students Get Taste of Smoke 16
Blindness Lasts a Long Time (eye protection series) by FREDERICK J. KOETH 18

★ ★ ★

Four Steps for the Care of Linoleum Floors (floor maintenance series) by WALTER SAWYER 20
Keep Tools in Good Shape—A Safety Illustration 23
What to do about a Stymied Safety Program ..... by JAMES R. SHEA, Sr. 25

★ ★ ★

Protection from Sparking ..... by R. HOFF 27
Mobile Scaffolds Aid Maintenance ..... by EDWIN J. BEINECKE, Jr. 29
Transportation Safety 38
Carbon Monoxide Control for Garages 39

★ ★ ★

SAFETY MAINTENANCE & PRODUCTION Salutes a Safety Idea for August 48
The Future Shows 52
Safety in Atomic Energy Plants 56

★ ★ ★

Industrial Hygiene 60
Protective Hand Creams (skin protection series) 62
Learning the Hard Way 66
The Industrial Nurse 68

★ ★ ★

Free Bulletins & Catalogs 71
What's New in the Safety-Maintenance Field 72
Check List of Advertised Products 76
Index to Advertisers 76

★

PICTURE CREDITS
Our Thanks for the Courtesy
Cover: A warning sign is left by Carl Hinds of the sanitary department while mopping floors at Eastman Kodak's Hawk-Eye Works.

AMERICA'S PIONEER MAGAZINE IN ITS FIELD

SAFETY MAINTENANCE & PRODUCTION is indexed regularly by Engineering Index, Inc., New York

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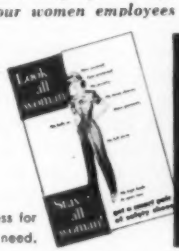

free: Educational poster shows women how to dress for work. 12 x 18. No advertising. Send for quantity you need.

LEHIGH
SAFETY SHOE COMPANY
ALLENTOWN, PA.

It's Safe to Say

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★ KNOWLEDGE MUST BE APPLIED

IT WOULD be interesting indeed to examine the accident reports and safety records of a plant for the months immediately following the visit of its safety director or operating official to a safety convention. One sees safety congress delegates pass down the aisles of the exhibit halls, often giving just a cursory glance to the products on display, as they hurry to or from safety meetings. In fact, sponsors of the various conventions proudly give out impressive figures of the total registration while any fairly keen observer is forced to the conclusion that a large part of the delegation must have remained in hiding.

A case in point occurred at the recent Midwest Safety Congress held in Chicago. Several thousand delegates actually signed their name on cards at the exhibit registration desk of the Congress Hotel but far too many of the visitors were conspicuous by their absence from the exhibit booths and the subject sessions. Perhaps they had absorbed previously all there is to know of accident prevention, fire control and health conservation!

Knowledge is power only when it is put to constructive use. In one sense of the word, we are extremely lucky that we have not yet reached a state of Utopia in the control of accidental fatalities and injuries. In other words, one cannot imagine any industrial operation where accident prevention effort has reached the ultimate in perfection without any hope of further improvement.

It is the application of knowledge gleaned from attending conventions, reading and training in safety which will pull down the accident record to somewhere near its irreducible minimum. Unless that knowledge or experience is given a day-to-day application, its effect is lost.

Safety does not mean the purchase of the best possible respirator, fire extinguisher, first-aid kit, gloves or goggles. Obviously, that first step is required but unless the employee facing the normal and even unforeseen hazards of his daily job is inculcated with the *need* for using such equipment to control those hazards, the finest equipment on the market or the most safety-conscious management can expect little in results.

Too many representatives of management, whether they be called safety directors, maintenance supervisors or operating officials, expect a safety pamphlet, a safety magazine or a safety convention to produce in itself miraculous results in eliminating all threat of accident, fires and industrial illness. Those necessary factors are but tools which must be placed, first of all, within the grasp of the proper hands to be used day after day, month after month and year after year. Otherwise there is no magic formula or magician's incantation that can be utilized to bring about the most salutary results toward the goal of safety and higher production.

Accident control on any worth-while basis never can be achieved through the medium of a special contest or "drive" where interest is allowed to sputter out at the end of any given period. Achievement in safety is just as much a part of daily routine as achievement in production since they are rather synonymous.

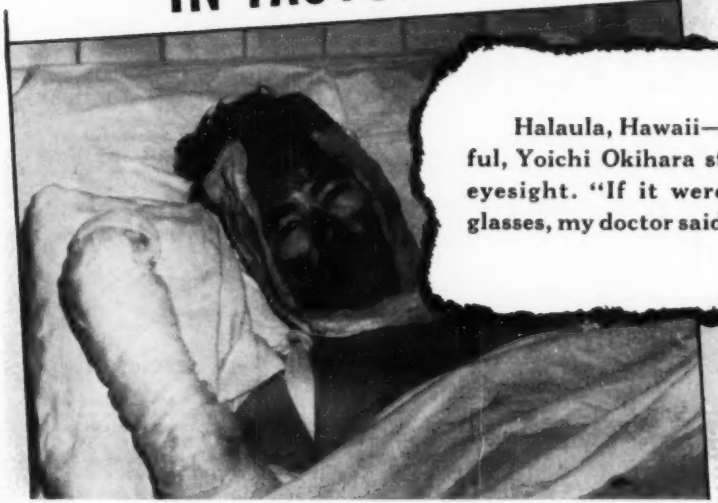
The maintenance of production requires actual knowledge and daily application of that knowledge. The same ingredients go into the maintenance of safety.

★ SUMMER HAZARD

BY THIS time, it is fairly common knowledge that various seasons of the year point up specific hazards. Long ago it was learned that body salt lost through profuse perspiration needed replacement in order to avoid heat fatigue which can bring about such dire results as prostration and protracted illness.

It is a simple matter to replace this salt loss not only in the summer months but in every season of the year where men work at the so-called "hot jobs." Even summer vacationists whose activities embrace something more strenuous than idly rocking on mountain resort porches now fortify themselves with handy tablets of salt unless, of course, some physical disability requires a special salt-free diet. In that case, chances are that exertion too is on the taboo list. In short, physical effort under conditions of extreme heat produces perspiration and salt loss through perspiration must be replaced to maintain health.—H. A.

SAFETY GLASSES AVERT BLINDNESS IN FACTORY BLAST



Halaula, Hawaii—Suffering but grateful, Yoichi Okihara still has his precious eyesight. "If it weren't for the safety glasses, my doctor said I'd be blind today."

1 SELL EYE SAFETY TO EMPLOYEES
Ask your distributor's representative to show you the kit of posters, pay envelope inserts, PA system scripts and other material that sells workers forcefully on *desire to use* proper safety eyewear.

2 SAFETY GLASSES FOR EACH JOB
A complete range of Bausch & Lomb safety eyewear, engineered to meet the most rigid tests for each job classification in your plant.

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For at least 50% of your workers prescription lenses are necessary to working efficiency as well as to safety. Your B&L distributor offers prompt prescription service on all types of industrial eyewear.

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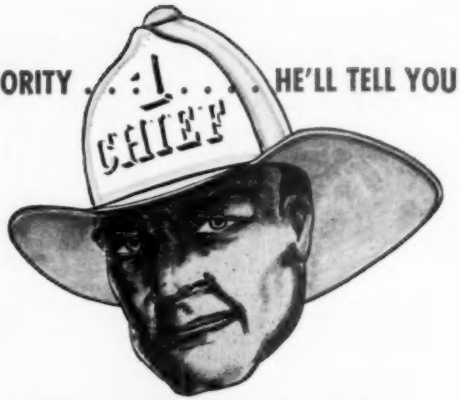

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MODEL 4-B

MODEL 30-B

MODEL 20-B

MODEL 150-A

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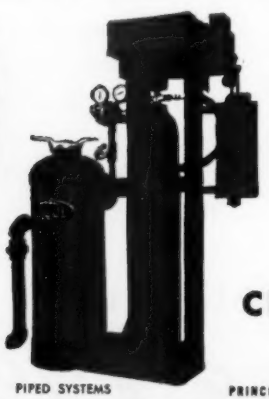
- Field tested by thousands of satisfied customers.
- Ansul LT Models are the only dry chemical extinguishers listed by U.L. for operation at –65° F.



PIPED SYSTEMS

Send for File No. 704. You will receive a variety of helpful printed matter. Included is our latest catalog which describes Ansul Extinguishers of all sizes — from the small Ansul Model 4 to Ansul Piped Systems and Ansul 2000 lb. Stationary Units.

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Armortred
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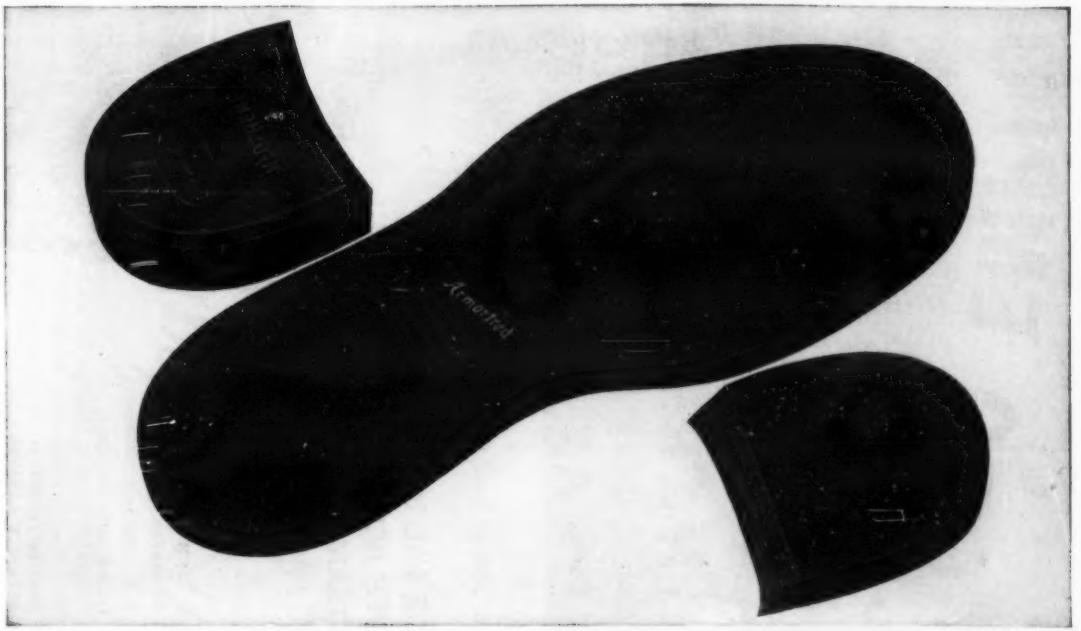

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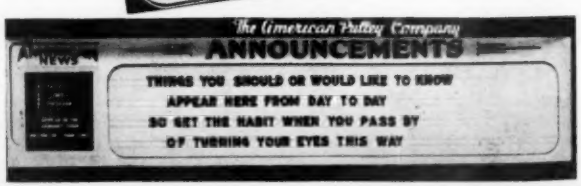
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SAFETY MAINTENANCE & PRODUCTION

VOL. 102, NO. 2 • AUGUST, 1951

The Maintenance Problem of the Small Plant

. . . . . the *Why* and *What*

By W. C. ZINCK
Plant Manager
Arbogast & Bastian, Inc.
Allentown, Pa.

WHY does a small plant have a maintenance problem? Every plant has a maintenance problem:

1. Because manufacturing facilities begin to deteriorate the moment they are installed.

2. Because manufacturing facilities must be kept in good repair: a. to protect the initial investment against premature wear, b. to produce products of highest quality, c. to produce products at maximum rate of production, d. to produce products at lowest possible cost, e. to produce products on schedule to meet promised deliveries, f. to maintain a good safety record, g. to maintain good employee relations; when workers have good machines and earn their wages efficiently, morale is bolstered.

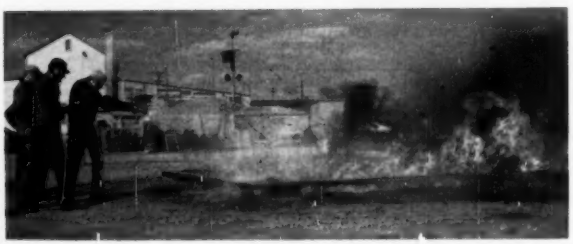
3. Because maintenance work requires production equipment to be shut down. Every shut down creates a problem. Shall production quotas be met by producing ahead under effective maintenance scheduling, or by a makeshift method after a breakdown, or must delivery schedules be altered because there will be no production as there is no alternative method quickly available, or the cost to produce by makeshift is too high.

4. Because each type of manufacturing facility requires its own peculiar maintenance equipment for lowest repair cost and least loss of production. The small plant must of necessity operate with general equipment plus absolutely essential special devices.

5. Because each type of manufacturing facility requires a specialized skill of the maintenance man for lowest repair cost and least loss of production. The small plant must of necessity *(To page 41)*

PROPANE jet is no match for two 350-lb. dry chemical wheeled extinguishers. IIT students "zero" the dry chemical streams on base of flames under watchful eyes of the Ansul test field technicians.

FIRE STUDENTS GET TASTE



WATER FOG from high velocity nozzle is moved up on 300 sq. ft. gasoline pit fire by the Illinois Institute of Technology fire protection students.

METAL FIRES are difficult to extinguish with conventional fire equipment, as demonstrated by Ansul engineer, left. He prepares to attack 5 piles of burning sodium with carbon dioxide, dry chemical, soda and acid, mechanical foam and water fog. Center background, a magnesium casting burns merrily, awaiting attempts at extinguishment by various pieces of fire equipment.

IF YOU were a student of fire protection engineering — about due for a field trip—where would you want to go? To a place where you could fight a few fires? Sounds reasonable, doesn't it?

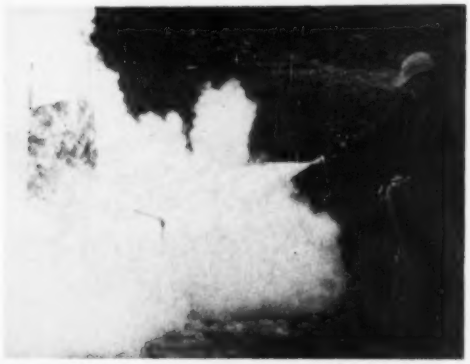
It also sounded reasonable to Prof. John J. Ahern, director of Illinois Institute of Technology's fire protection and safety engineering department. So, recently, he arranged to take his senior fire protection engineering class to a place where its 28 members could fight fires to their hearts' content. The place? The large fire test grounds of Ansul Chemical Co., Marinette, Wis.

During two days in Marinette, the 28 senior students got their first opportunity to wade into every type of fire with every type of equipment.

Since most of the students had already lined up jobs involving industrial fire protection, emphasis was placed on industrial fires. The IIT men—with the vigilant Ansul test field technicians at their elbows—first worked with hand extinguishers on small fires. As they

STUDENT boldly walks in on burning propane jet striking a steel baffle. Using 30-lb. dry chemical extinguisher and aiming stream at jet opening, he quickly extinguishes fire.

DETERMINED student mops up the 25 sq. ft. gasoline pan fire with 30-lb. dry chemical extinguisher. Notice student's effective technique in striking the leading edge first, following up with complete blanketing of the fire area.



OF SMOKE

gained operating familiarity with dry chemical, carbon dioxide, vaporizing liquid, foam and water spray equipment, their ability to fight fires rapidly increased.

From hand equipment the students progressed to larger, wheeled extinguishers—and to larger fires.

A typical big blaze was a 300 sq. ft. pit filled with 400 gal. of fuel oil. The young engineers tried three different pieces of equipment on this fire: 350-lb. dry chemical unit; water spray 1½ in. nozzle without applicator, hydrant pressure; mechanical foam 1½ in., hydrant pressure.

Other spectacular fires included vertical and horizontal propane jets, overhead flange leaking gasoline and a gasoline jet. Fuel pressure ran about 80 lb.

Not all of the fires were extinguished by the IIT men. In one case a student "missed" with a hand extinguisher, ran back for a different type and knocked out the fire. In other cases, Ansul technicians took over with standby equipment when the students' supply of *(Continued page 45)*

MECHANICAL FOAM builds up fire-quenching layer on gasoline pan. Two IIT students demonstrate correct use of this foam unit for their class mates.

RAPID action with small carbon dioxide extinguisher knocks out 4 sq. ft. gasoline pan fire. Students gained experience in all types of extinguishers.

Blindness Lasts a Long

If there is any safety director or foreman who has not had employees complain about having to wear safety goggles, this article is not for him. Here are some suggestions for overcoming workers' resistance to eye protection.

MANY safety directors tell us that one of their most perplexing problems is the unwillingness of some employees to wear safety glasses on the job. These workers have a variety of excuses, and in many cases pleading, cajoling and even demanding have no effect.

An employee may pitch his glasses into the nearest circular file with the excuse, "These damn things make my head ache." Or, he may say: "They're too hot; the lenses get foggy; they hurt my nose and ears; they're too heavy; they pull on my eyes. . . ."

Maybe they do. But what do you do with complaints of that sort? You show either that there is no reason for the excuses or that the discomfort or irritation is infinitely less than the damage which might ensue if the employee were to neglect the rules set up to protect him. It's a fact that workers who utter these complaints sometimes have good reasons. They *do* have headaches; the glasses *are* too hot.

All this suggests that the employees are probably not wearing the correct type of safety glasses. Or they may not be properly adjusted. Perhaps the safety glasses have poor quality lenses containing a degree of power and therefore should be exchanged for a pair of safety glasses with lenses that have been correctly made.

But the lenses *are* thick—thick because they are tempered to resist impact. The glasses *are* heavy—heavy because they are encumbered with side-shields to guard against the hazards of flying objects from the side. Safety glasses are not things of beauty and it is undoubtedly more comfortable to go about one's work without them.

All this is true. But temporary loss of comfort, it would seem, is a fair substitute for the loss of an eye. The balky glint in an employee's eye is a lot better than some other things—a piece of steel, for instance. *Blindness lasts a long time;* the wearing of safety glasses lasts only for hours.

The safety director is responsible for employees' welfare on the job. He knows they should wear safety glasses made by a reputable manufacturer and selected because

Protective eyewear saved this welder's eyes.

FEATURE

This is the third of a series of three feature articles on Eye Protection. The first two articles, dealing with eye safety and plastic goggles, appeared respectively in the May and July issues of SAFETY MAINTENANCE & PRODUCTION.

Time

Badge of carelessness. He forgot to wear his safety glasses.

By FREDERICK J. KOETH, Manager
Protective Eyewear Sales Department
Bausch & Lomb Optical Co.

they are specifically adapted to their type of work. He also knows that some workers will try to avoid wearing safety glasses. The safety director's choice is a small one: either persuade them to wear safety glasses or insist on it.

A safety director told this story recently.

A sweeper wore ordinary glasses with prescription lenses, untempered. His route took him through a carpenter shop—it was the shortest distance between two points. No one had ever supposed that he would be in danger. Month after month he used that route. Then one day . . . of course it was an unusual accident . . . the splinter came from an oblique angle. No one could quite understand how it had happened. But the point is . . . it did happen. The sweeper got compensation of a kind. Now when he applies for a new prescription the examination takes only half as long. Sound binocular vision is no longer one of his problems.

Effective Eye Safety

No objection against safety glasses is valid. Objections may be based on fact and not on fancy. But still they are not valid. Safety glasses are big; they are heavy; sometimes they are hot; sometimes the lenses fog; sometimes conscientious employees feel like yanking them from their faces and meeting the danger, potentially always there, with both eyes open. But this is unwise. Somehow or other it must be forbidden—and that is the big question the safety director faces. How is he going to make certain that all employees who should be wearing safety glasses are actually wearing them?

There is only one way. That is by making eye protection mandatory in the plant.

A lens lost, but an eye saved.

The mandatory glasses program is a simple matter and it certainly makes the safety man's task a lot easier. It consists of orders from the head office that glasses must be worn on hazardous jobs and in all hazardous work areas. Refusal results in dismissal. When a dissenting employee is discovered, he is simply invited to visit the cashier and get his pay. No kicks, no comebacks—he is through.

Of course this is a drastic procedure. But it is the only really effective one. It requires a strong hand; it needs a firm management; it demands safety administrators who don't hesitate to use authority. So, if you want to be sure that you are protecting the vision of your workers, and incidentally keeping your insurance rates as low as possible, you may find it necessary to adopt the mandatory safety glasses program. It is the only way to do *(To page 54)*

Four Steps (or less) for the care of Linoleum Floors

By WALTER SAWYER of Johnson's Wax, Racine, Wisconsin

How to wax linoleum floors properly
What daily maintenance is required?
When should linoleum be re-waxed?

PROPER floor care is "no accident." This statement is true of linoleum as it is of other types of floor surfaces. There are three major factors involved in providing safer floors no matter what type they may be. First, the floor must be properly finished. Second, correct schedules of routine maintenance must be established and continued. The third factor is the careful selection and use of the right products.

Linoleum flooring is a mixture of linseed oil, ground cork, color pigments and other filler materials. These ingredients are pressed out on a backing which is usually composed of burlap, jute or some similar material. Because of the linseed oil in linoleum, strong alkaline cleaners should never be used on this type of floor covering. Alkali will actually break down the linseed oil in the linoleum with the result that the linoleum becomes brittle and begins to crack and curl. An abrasive cleaner will damage the smooth surface of the linoleum and soon destroy its appearance.

Get the Right Finish

There are four steps in the proper finishing of a linoleum floor. Apply a good, safe cleaner as the first step. The proper cleaner will quickly soften all surface film. Scrub the floor well, then rinse the floor thoroughly to remove every trace of dirt film and old wax floated free of the floor by the action of the cleaner. Traces of soap on a floor can be dangerous because the soap softens and blends with the finish often causing slipperiness and dull appearance. The floor should be allowed to dry completely before applying wax.

Linoleum floors may be finished with either a good water emulsion wax or a solvent buffing wax. If the water emulsion type wax is used, apply a full, even coat using a mop or applier. This type of wax normally dries in 20 minutes and requires no buffing. If greater luster is desired, a second coat should be applied in the same manner.

For extra safety, use a water emulsion finish which has slip-retardant characteristics. Applied in the same manner as the regular water emulsion wax, this type product is the proper prescription for problem floor headaches.

If a solvent wax is used, it should be applied in a thin coat and let dry for 20 to 30 minutes. After the wax is dry, polish with an electric polisher. Additional luster can be obtained by applying and polishing a second coat immediately after polishing the first one.

Daily Maintenance Schedules

Basic maintenance of linoleum floors is simple, but the schedule should be followed month in and month out, as all the good that is accomplished by giving the floor a safe initial finish can be undone by

Solvent-type wax finishes must be polished with an electric polisher. The polisher should also be used from time to time to polish heavy traffic areas and to remove scuff marks. Contrary to popular belief, polishing will not make a floor slippery.

FEATURE

This is the third of a consecutive series of three major articles dealing with Floor Maintenance. The first two articles of the series, discussing wood and concrete maintenance, appeared respectively in the June and July issues of SAFETY MAINTENANCE & PRODUCTION.

Step 1. Remove Old Wax: A heavy build-up of wax on a linoleum floor should be avoided for reasons both of beauty and safety. Remove the old wax with a good safe wax stripper as the first step in preparing for a complete re-waxing.

helter-skelter maintenance. Linoleum floors should be dusted daily with a hair broom or dry cotton mop to remove dirt which might be ground into the finish if left too long. A daily dusting will also keep the floor clean of foreign particles which can be dangerous underfoot. If a mop is used for cleaning, be sure it has not been treated with oil and also avoid oil sweeping compounds. The thin film of oil that these methods leave on the floor may prove hazardous.

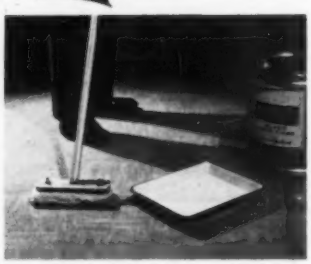
Re-Waxing Schedule

Heavy traffic areas should be touched with wax at regular inter-

Step 2. Rinsing: It is very important to rinse a linoleum floor thoroughly before applying finish. After dirt has been loosened by action of the cleanser, rinse thoroughly and rinse a second time if necessary. Allow plenty of time for drying.

A solvent type wax should be applied in a thin even coat. The wax will dry to a dull finish within 20 to 30 minutes. A thin coat dries quickly and will not "roll" when stepped on. "Rolling" results when the wax coat is so thick only the top parts dry.

When a water emulsion wax is used on linoleum floors, a full, even coat should be applied. The wax dries in 20 minutes and no buffing is necessary. Should a greater luster be desired, a second wax coat should be applied in the same manner.



As an extra safety measure, a water emulsion finish with slip-retardant characteristics can be used on linoleum floors. This finish requires no buffing after application. Its use may be the solution to many of those problem floors in offices and buildings.

vals. This procedure will keep complete re-waxing at a minimum. Linoleum floors should be wax-stripped from time to time. Any floor finish becomes brittle and hazardous after months of dehydrating or if too many coats are built up on the surface. Here is a rule to follow: Strip floors every 6 months or after every 6 waxings whichever comes earlier. Use a good, safe cleaner which will strip old finish quickly and easily.

Don't scrub, mop or wax a newly laid linoleum floor for at least a 72-hour period in order to allow the adhesive used in laying the floor a sufficient time to dry thoroughly.

The maintenance of a safe linoleum flooring is vitally dependent upon the selection of good floor maintenance products. The cleaner should be fast-acting and effective and the waxes of highest quality. Floor safety cannot be bought in the "bargain basement" nor fashioned by miracle methods.

Pictures by courtesy of S. C. Johnson & Son, Inc.

Rebate from Eye Safety

A GOOD industrial vision program will pay a financial return to management on two counts—by increasing production and by reducing compensation payments for eye injuries, Dr. Leonard Greenburg, executive director of the division of industrial hygiene and safety standards of the New York State Department of Labor, told the annual conference of the National Society for the Prevention of Blindness. Dr. Greenburg cited several case histories to prove that a company's eye care program will more than pay its way.

Excerpts of his talk follow:

"A complete industrial vision program should include two basic points: 1. protection against eye injuries; 2. correction of sub-standard vision. Many members of management do not realize that these two points are inter-related.

"Let me cite one example: A few years ago, a midwest manufacturing company discovered that employees with sub-standard vision were involved in twice as many accidents than were those workers whose vision was better than the minimum requirements for their job.

"Actually, of course, we do not need that and other statistics to show that poor vision is related to eye accidents. It seems axiomatic that a worker with poor sight is far more likely to stick a finger in the wrong part of a drill press than is a man with normal vision.

"But statistics do help to show us how serious is the problem of sub-standard vision among industrial workers. It is estimated that 15 per cent of all workers in manufacturing plants have serious visual defects. Another 15 per cent have minor visual defects which must be corrected if they are to do their jobs safely and competently. When we examine the small industrial plants—where vision programs are the rare exception—the problem is even more serious. A survey in Baltimore, for example, indicated that 40 per cent of the workers in America's small plants have vision which is not what it ought to be for their jobs.

"In addition to being accident prone, these men are also inefficient workers from the production point of view. Here's a case in point from a midwestern printing plant. This plant found that workers with good vision were producing an average of $1,384 a year more than employees with poor vision. By improving a worker's sight, the printing plant estimates that his production will increase from 50 to 90 per cent. Thus if he had been turning out five dollars worth of goods an hour, his production will jump to as high as $9.50 an hour after his sight has been improved.

"This increase in production will more than pay back the management of the printing plant for the cost of its vision program. But that's not the only financial dividend of a good vision program. It will also reduce the amount of eye injuries in a plant. And the 300,000 eye injuries which occur each year in American plants are costly—to labor as well as management.

"The cost of an eye injury cannot be exactly calculated. The pain to the injured worker is alone an immeasurable cost. But that is only the beginning. At least 1,100 workers lose the sight of one or both eyes annually in accidents. In fact, some *(To page 46)*

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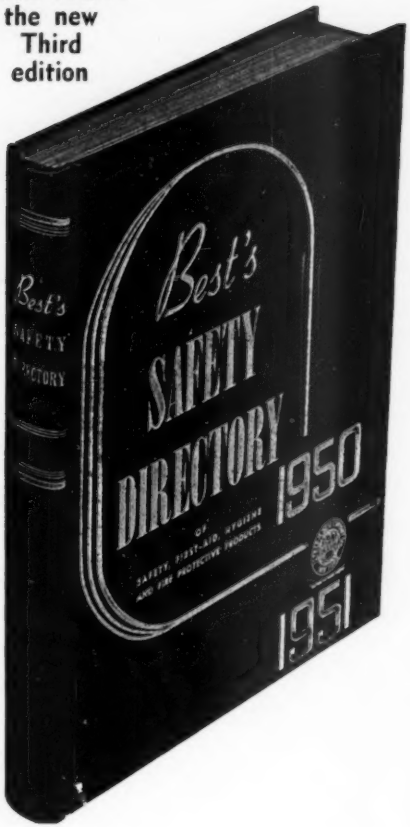

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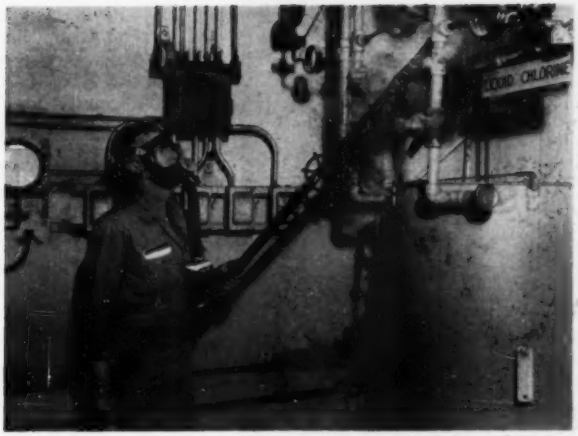


When working around liquid chlorine lines, especially when hunting leaks with the aid of a "dip stick", as this employee is doing, workmen are protected by industrial gas masks equipped with U. S. Bureau of Mines-approved canisters for chlorine fumes. The gas masks have wide-vision face pieces and speaking diaphragms. The latter enable the workers to communicate with each other or to use telephones or speaking tubes, without having to remove their gas masks.

What To Do About
A STYMIED SAFETY PROGRAM

This mill was thoroughly equipped with safety equipment and devices, but it still had a bad accident record. The story has a happy ending—they found out what was wrong.

By JAMES R. SHEA, Sr.
Manager, Tyrone Mill
West Virginia Pulp & Paper Company
Tyrone, Pa.

CONFRONTED at the end of its 1944 fiscal year with the worst annual safety record in its history —89 lost-time accidents and a frequency rate of 63.39—operating management of the Tyrone (Pa.) Mill of West Virginia Pulp and Paper Company began a complete reorganization of its safety program. Six years later lost-time accidents in one year had been reduced to three, while the frequency rate was down to 1.88. In the interim Tyrone Mill had won all company trophies and awards for safety progress from 1946 through 1949. By mid-May, 1951, Tyrone Mill has operated for a six-months period without a lost-time accident, leading all of the company's six mills.

Seemingly there was no explanation for 1944's bad accident record at Tyrone Mill. Management had laid emphasis on maintenance of safe conditions within the plant. Safety equipment was available for employees. Machinery was equipped with mechanical guards of proved practicability. Adequate and proper lighting was provided. It also was company policy to watch for hazardous procedures and methods and eliminate them as

The bleacherman is wearing a cartridge respirator for protection against light concentrations of chlorine. Such respirators are also used in all other areas where small amounts of chlorine, sulphur dioxide and similar gases are encountered. The respirator, with its replaceable chemical cartridge, protects against intermittent exposure to light concentrations of acid gases and organic vapors in the atmosphere.

Respirators are worn in breaking and loading the limestone, drawing it from the kilns, or handling 'hot" pebble lime. Made of aluminum and rubber, the respirator has filter cases placed on either side of the face to allow unobstructed sidewise and downward vision. They are used for protection against such dusts as limestone, wood, clay and chalk. All of these materials are found in a paper mill.

soon as discovered.

An analysis of the situation disclosed, however, that the key to the problem lay in the fact that there had been a lack of proper education in safety. Little had been done to train employees how to work safely.

To correct this a safety director was appointed on a part-time basis. At the same time a Mill Safety Committee was appointed. The plant was divided into 32 Safety Groups and an intensive educational program was begun. This was directed first to the members of the Safety Committee. Stress was placed on "Accident Control" and "Safety Leadership." Supervisors then were brought into the program. Finally it was carried to individual employees.

Regulations covering the use of safety and protective equipment and instruments were drawn up and the revitalized program was inaugurated in May, 1945. During the previous seven months, a total of 60 lost-time accidents was recorded. The value of the new program was demonstrated when, during the remaining five months, which completed the company's fiscal year, the number of disabling accidents was held to 16.

Your Money's Worth from Safety Equipment

Under direction of the new Safety Committee—its members serve on a permanent, rather than on a rotating, basis—every employee at Tyrone Mill was trained in the use of protective equipment. This was provided for him personally, or for use on jobs in his department. Much of this equipment had been available before but, as had been disclosed by the investigation, many employees did not know how to use it properly.

At the beginning of this year safety equipment provided by the company included instruments for the detection of toxic and explosive gases; plastic-and-fibre helmets for head protection; various types of goggles, both standard and prescription; rubber gloves for handling acids; sand blast helmets; metal foot guards; safety belts; dust and fume respirators; protective creams; burn ointments; industrial gas masks; various types of air supply masks; air moving devices for purging enclosed areas of combustible or toxic gases, dusts, smokes and vapors; welding helmets, jackets, leggings, aprons and gloves; First Aid kits; babbitting masks and acid masks.

Shortly after mid-1949 it was announced that Tyrone Mill had won the award of the National Safety Council for Class B mills in the Pulp and Paper Industry for the contest year ended June 30, 1949, with a frequency rate of .59. Every employee at the Mill was elated and each felt personal pride in the achievement. In a message to employees at the time I wrote:

> "The safety records set at Tyrone have been possible only through hard work and enthusiastic effort by every employee. Our Safety Committee functions to bring home to our men the message that 'Safety and Production go hand in hand, since every Safe Worker is a Good Worker.' Safety is better than Compensation because everybody loses when a worker is injured."

So well has Safety been inculcated at Tyrone Mill that every man here is, in *(To page 46)*

Before "hot work" such as welding can be started in certain areas, supervisors test the atmospheres for explosive gas concentrations with a portable device.

★

★

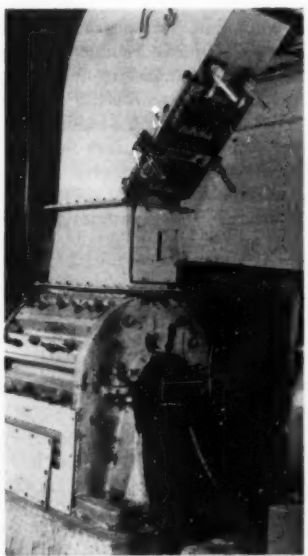
By R. HOFF, Chief Engineer

Eriez Manufacturing Co., Erie, Pa.

★

Permanent magnet for separation of the tramp iron from chemical by-products (used as food supplement) at Lederle Labs., American Cyanamid Co., Pearl River, N. Y. The screen removes obvious pieces of tramp iron; and any smaller metal impurities that may be present cling to the plate located on the chute between the hopper and the grinder.

PROTECTION FROM SPARKING



Double-row plate magnet installed on the underside of chute ahead of a hammermill at a large eastern cork company. This effective method of removing tramp iron from gravity flows of materials prevents fire and machinery damage. The plate magnets swing out for easy cleaning of any tramp metal which may be clinging to the plate.

Magnetic separators prevent sparking in hazardous areas by removing tramp iron from production equipment.

THE fire and explosion hazard which exists where explosive or flammable materials-in-process have not been cleaned of stray iron has been eliminated in many ordnance and chemical plants by the use of powerful, non-electric magnetic separators. Magnetic protection is demanded in these circumstances because stray iron can easily spark when striking steel conveying equipment or when going through rollers or grinding machinery.

The Dust Explosion Hazards Committee of the National Fire Protection Association has constantly urged that magnetic separators be used in the processing of explosive ingredients. The Safety and Security Branch of the Army Ordnance Department has taken the same stand.

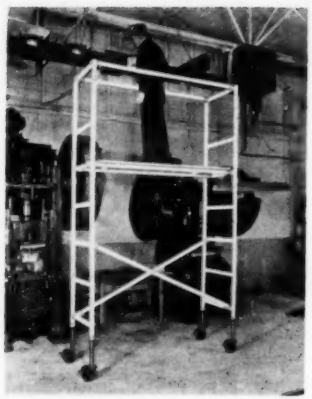
The production of an industrial magnetic separator came about after several years of development and testing.

By designing a powerfully magnetic ferrous alloy of aluminum, nickel, and cobalt into large segments for assembly on magnetic pole plates, one company produced permanent (non-electric) magnets with power comparable to electrically powered plate magnets . . . and without the disadvantages of the electric type.

The first user of these magnets in the explosive field was the Hercules Powder Company at its Hopewell, Virginia, plant. Shortly after a plate-type magnetic separator was introduced to industry, Hercules ordered a small unit for testing purposes. Noting that this simple, compact unit was just as strong as its electric-powered predecessor . . . yet could not spark, heat up or get out of order . . . the Hopewell plant *(To page 44)*

MOBILE SCAFFOLDS AID

Use of New-Type Rolling Work Stands Saves Time and Labor on Many Jobs.



Ladder scaffolds such as this are ideal for many types of maintenance, repair, cleaning, replacement and electrical work.

INTRODUCTION of light metal as a basic material for scaffold construction marked a tremendous stride forward in stepping up the off-the-ground efficiency of the individual worker. Maintenance men, especially, have been quick to see that the minimizing of weight contributes to greater convenience, reduced operating costs and increased safety—particularly in the case of rolling scaffolds.

Sound engineering principles have replaced hit-or-miss, rule-of-thumb planning and modern scaffolds have little in common with the heavier, fixed, not-too-safe, built-on-the-job wooden structures that were so widely used at the turn of the century. The very elementary idea that men can do more and better work in the same time on safer scaffolds has been proved true by engineering theory and actual practice.

Aluminum rolling scaffolds are an outstanding example of design progress. A large variety of sizes are currently available to meet the specific needs of many types of maintenance work. Standard frames, braces and platforms can be readily assembled into an almost unlimited selection of job-fitted scaffolds.

It is hardly necessary to emphasize that the use of rolling scaffolds avoids the need for an overall scaffolding . . . and that rolling scaffolds can be readily moved as work progresses. On-the-job studies reveal clearly that they offer a substantial saving in man hours—in erection, use and dismantling—with complete safety.

Many Applications

Use of aluminum for the major components does not sacrifice structural strength. Ordinarily, one man can erect and take down the average aluminum rolling scaffold. Decreased weight makes individual frames and parts easier to handle. Experience shows that it is safer to handle aluminum parts because of their lightness and that men are less likely to have accidents.

Versatile aluminum rolling scaffolds have many uses in industry . . . and new applications are discovered daily. Effective applications are found both indoors and outside in office buildings, warehouses, factories, hospitals, institutions, public buildings and many other places. Cleaning, repair work, equipment installation, painting are some of the more important specific uses.

The aluminum alloys used in scaffolding are as tough and strong as the alloys used in airplane construction. The prefabricated frames, braces and platforms are interchangeable and can be incorporated in a structure of any size consistent with normal safety standards.

Major Types Available

Aluminum scaffolds are of two types: sectional rolling scaffolds and sectional ladder scaffolds. The former have base dimensions of 4′ 6″ x 6′. Ladder scaffolds, also available with casters, are approximately 24″ wide.

Aluminum sectional rolling scaffolds are available with inside stairway or with a vertical ladder as an integral part of the frame. Working platforms, guard rails and adjustable legs to level the scaffold on uneven ground, and ball bearing, double-lock casters complete the assembly. Legs provide adjustments up to 18″ or 24″.

Working height depends on the number of sections employed. In multi-section aluminum sectional rolling scaffolds, the lower section, including casters, is approximately 7′ 4″ from ground level to platform. Upper sections are usually 6′ 8″ high, the ideal distance for headroom. Frames for the intermediate or upper sections fit over coupling pins and are secured by a hinged

MAINTENANCE

By EDWIN J. BEINECKE, Jr.
The Patent Scaffolding Co., Inc.

The basic unit of sectional ladder scaffolds consists of 6'1" ladder sections, a floor section, diagonal braces, a horizontal brace-rail and caster wheels.

pin that cannot work loose.

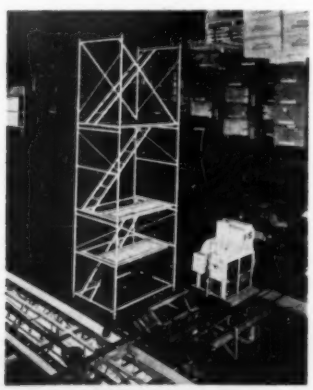
Guard rails are a desirable safety feature which are quickly and easily placed in position. Working heights may be increased by use of outboard safety-support frames so that the normal safety factor is not exceeded. This requires that the height of the working platform be not more than four times the smallest base dimension.

One man usually can take care of erecting and dismantling an aluminum sectional rolling scaffold. Although frames are strong and rigid, they are easily handled. All components lie flat for transportation and storage and require minimum space.

Because work must often be carried on during business hours, the clean, bright, finished appearance of aluminum is important when rolling scaffolds are to be used in public view.

Aluminum rolling scaffolds are favored in factories and industrial plants because maintenance work can be carried on without halting normal activities and because they are so easy to erect. Little floor space is required and the scaffold is readily moved to keep pace with the work. Use of a rolling scaffold makes it totally unnecessary to obstruct a large floor area with a fixed scaffold.

In some instances, it is desirable to erect continuous assemblies to cover the full width of the work area . . . and move them as a single unit.



This 3-section stairway type aluminum rolling scaffold is being used with the top platform at the intermediate level.

How Ladder Scaffolds Fit Limited Places

Because the typical ladder scaffold is only 24" wide, it is ideal for use in aisles and other tight spots where "elbow room" is hard to find. An aluminum ladder scaffold readily rolls through a 30" door and will clear obstructions up to 5' 10" in height, including caster adjustment. In factories, they are used to work over machines or other equipment and in stores and offices, to clear desks, counters and files.

A frame 6' 1" high, 24" wide, is the basic unit of a typical aluminum sectional ladder scaffolding. Available parts and components for making up a variety of assemblies include: platforms, diagonal and horizontal braces, intermediate and extension sections and guard rails. Spans of 6', 8' and 10' are available.

Ladder scaffolds are built with many safety features including extension bases, outboard safety supports, rubber tired casters, and extension legs adjustable up to 18" or 24". They are also frequently joined by stages to span wider areas. Ladder sections in heights of 6' 1", 5' 8" and 4' are obtainable, to meet the requirements of various trades or conditions. As with the stairway type scaffold, sections lie flat and take up little space for transportation and storage.

Practical Advantages

For safe, economical maintenance work, aluminum scaffolds are widely used because:

1. Solid footing makes work easier and safer for men at every level.

2. Erection and dismantling time are reduced to the minimum.

3. It's easier to handle the lighter aluminum parts.

4. Greater mobility puts men on the job faster.

5. Engineered designs help to reduce accident hazards.

6. Capacity to handle a variety of scaffolding jobs that would otherwise require fixed scaffolds.

7. Definite savings in labor—in

erection, use and dismantling.

Scaffold Selection

It is important to compare many details when attempting to pick the most desirable type of aluminum rolling scaffold for any job. This is particularly important since long equipment life and trouble-free service are essential. Particular attention must be given to design and manufacturing details because rigidity, stability and long-lasting endurance depend on them. All coped joints should be fully and smoothly welded to give long, safe usage.

Socket clearances should be adequate to assure easy assembly. Dents and burrs result in a poor fit. On the other hand, clearances must be small enough to provide rigidity when the scaffold is put together. It is desirable that all mechanisms, including springs and pins on braces, be readily available for inspection and cleaning.

A Word on Safety

These suggestions will help you obtain the most satisfactory results with aluminum rolling and ladder scaffolds:

1. Limit scaffold height to a ratio consistent with the base area, as prescribed by the standard "four to one" safety rule.
2. Be careful in outdoor work that scaffolds cannot be struck by trucks or moving equipment.
3. Eliminate overloads which can easily cause extra labor, accidents and needless expense.
4. Check to see that scaffold is rated by Underwriters' Laboratories, Inc.
5. Make it a rule always to use guard rails.
6. Workmen should never stay on tower while it is in motion.
7. Make sure all casters are locked when scaffold is in use.

In this age of "streamlined" products, aluminum rolling scaffolds bring new operating efficiency, economy and safety to the needs of maintenance work. The many possible applications for this versatile equipment should suggest new ways for maintenance men to save time, labor and money by having many difficult jobs done faster and easier.

Pictures by courtesy of Patent Scaffolding Co.

Wise Owls on the Increase

THE Pennsylvania Railroad has become the first railroad in the East to organize a chapter of the "Wise Owl Club"—recently formed organization to promote eye safety—with receipt by Paul W. Triplett, Superintendent of the New York Division, of a charter from Robert S. Krueger, Director of Industrial Service of the National Society for the Prevention of Blindness.

At the same time, Adolph Al Luciano, a plumber's helper employed on the Division, was inducted as the first individual member in the Pennsylvania's chapter. He recently avoided serious injury and probable loss of an eye when the safety goggles he was wearing at work in the power plant at the Hassimus Cove Yard, Jersey City, N. J., stopped a large iron sliver. The metal chunk flew up from a piece of 14-inch pipe which he and two other employees were severing with rail cutter and sledge. It fractured the lens of his goggles but did not reach his eyes.

In presenting the Pennsylvania's charter, Mr. Krueger said: "Three hundred thousand eye injuries are reported each year by American industry, causing untold suffering and pain as well as valuable loss of time and manpower. Ten per cent of all permanent partial disability cases in the railroad industry are attributed to eye injuries which might have been prevented. Through sponsorship of the "Wise Owl Clubs" the National Society for the Prevention of Blindness, with the cooperation of management and labor, is dramatizing the effectiveness of such safety precautions as the wearing of goggles on the job."

Mr. Triplett in response said: "We are proud to be the first Division in the first Eastern railroad to join the 'Wise Owls' and we feel certain that this organization will help us in our continuing safety education campaign among our employees."

The first "Wise Owl" chapter was established in 1947 by a grinder in the St. Louis, Mo., plant of the American Car & Foundry Co. At present the only other railroad holding a charter is the St. Louis Southwestern.

The pair of goggles which saved Mr. Luciano's eyes will be placed on permanent exhibit in the New York Division's special safety instruction car which is visited by many thousands of employees on all parts of the Division each year.

WANTED SAFETY ENGINEER

By Casualty Insurance Company for midwest territory. Salary open. Please give full details of experience and personal qualifications.

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SAFETY MAINTENANCE & PRODUCTION, 75 Fulton St., New York 38, N. Y.

Safety Program for Fertilizer Industry

PLANS were made for a fertilizer industry safety program at the first meeting, held in Baltimore, of the advisory committee of a newly organized fertilizer section of the National Safety Council, under the chairmanship of A. B. Pettit, supervisor of industrial health and safety of The Davison Chemical Corporation. A formal program for nationwide action will be presented at the

October 11, 1951 National Safety Congress in Chicago.

"Although there are more than 500 fertilizer plants in the United States, there has never prior to this been any organized national effort to reduce the appalling frequency and severity of accident injuries occurring in the industry," Mr. Pettit said in announcing the appointment of the fertilizer section and the launching of the project at the meeting of the advisory committee.

Serving on the section with Mr. Pettit, who is general chairman, are J. S. Fields, Phillips Chemical Co., Bartlesville, Okla., vice-chairman, and J. E. Smith, Spencer Chemical Co., Pittsburgh, Kansas, secretary-treasurer. The advisory committee consists of these officers and the following individual members: J. M. Sisson, Tennessee Valley Authority, Wilson Dam, Ala.; H. R. Krueger, Phillips Chemical Co., Bartlesville, Okla.; M. F. Wharton, Arizona Fertilizer Inc., Phoenix, Arizona; and R. L. Hugg, International Minerals and Chemicals Corp., Chicago, Ill.

Pointing out that many other industries have for years cooperated to conduct special sessions for the solution of specific problems at the National Safety Congress, Mr. Pettit said that industries which have conducted special aggressive programs have been well rewarded by a substantial reduction in the number and seriousness of their accidents and a decided decrease in the industrial illness experienced by employees.

The fertilizer industry is being urged to send representatives to the forthcoming meeting of the Congress where measures for reducing accidents and industrial illness, such as the exchange of health and accident information, the maintaining of proper records and the analysis of accident causes, will be discussed. Mr. Pettit reports widespread interest in the program among the companies, and the National Fertilizer Association and American Plant Food Council have indicated wholehearted support.

New, Fast-Acting, Automatic

"SMOKE-FIRE DETECTIVE"

For Air Conditioning

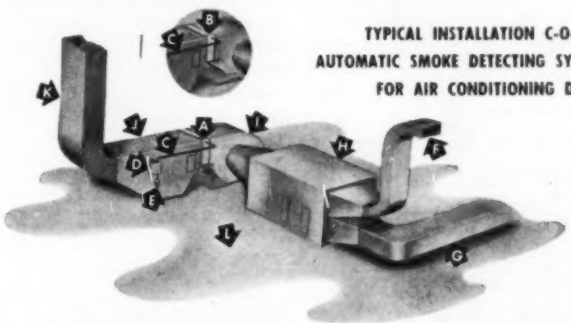
Smoke in your air conditioning spreads fast . . . causes panic, extensive spoilage and needless expense . . . now all can be avoided by installing a modern, fully approved C-O-TWO Automatic Smoke Detecting System.

Smoke, smoldering and fire are spotted in the incipient stage anywhere throughout the air conditioning ducts, as well as via the return air from air conditioned spaces. Four types of smoke detectors and several different installation arrangements are available to fit your particular needs . . . for small air conditioning units, for large air conditioning systems, and whether with or without electrostatic precipitators. All C-O-TWO Automatic Smoke Detecting Systems function by drawing continuous air samples through simple piping to a smoke detector. The first trace of smoke sets off an alarm, based on an exclusive operating principle . . . no chance of smoke spreading . . . the air conditioning instantly shuts down, dampers close and fire extinguishing systems actuate.

Act now for complete free information and descriptive literature on this newest contribution to modern fire fighting. An expert C-O-TWO Fire Protection Engineer will be glad to help you in planning up-to-date, economical, fully approved fire protection facilities for your air conditioning without obligation.

(Special assistance rendered to qualified air conditioning contractors.)

TYPICAL INSTALLATION C-O-TWO AUTOMATIC SMOKE DETECTING SYSTEM FOR AIR CONDITIONING DUCTS



A perforated smoke accumulating pipe
B smoke accumulating pitot tube (alternate)
C pipe line for carrying continuous air samples to smoke detector
D smoke detector
E audible alarm
F fresh air intake and duct
G return air duct
H air cleaning unit
I air fan
J air cooling and heating unit
K supply air duct
L floor level

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Built-In High Pressure and Low Pressure Carbon Dioxide Type Fire Extinguishing Systems
Built-In Smoke and Heat Fire Detecting Systems

How to Prevent Cotton Fires

BECAUSE of growing concern over mounting cotton fire losses in recent years, the National Board of Fire Underwriters has issued a 34-page research report on the causes and prevention of cotton fires.

Based upon two extensive field surveys conducted during the peak ginning periods of the 1948 and 1949 seasons, the report is entitled "Survey on Causes and Prevention of Cotton Fires."

The publication points out that "Cotton appears to be destined as a critical material" because of unfavorable weather conditions in part of the cotton belt during 1950 and because of strong demands resulting from the Korean conflict and world unrest.

Fires, which destroyed the output of nearly 200,000 acres or productive farmland during the 1945–1946 cotton season, with a dollar loss estimated at $17,000,000, could cause a more severe shortage if they continue as in recent years, the report asserts.

Among the leading causes of these fires were careless smoking, poor housekeeping in cotton gin yards, sparks caused by foreign matter mixed in with cotton, static electricity, incinerators used in waste disposal, lack of a safe loading pattern in box-cars, and defective tie-bands.

Another hazard is the so-called "fire-packed bale," which may smoulder and burn for a long period of time before bursting into flame and causing wide destruction.

The report points out that yearly losses in cotton fires could be reduced by increased education in the rudiments of fire prevention and protection, improvements in housekeeping around operating and storage areas, and research and technical developments in fire control.

The study of the cotton fire problem was made with the cooperation of the Cotton Fire and Marine Underwriters, Cotton Insurance Associates, Cotton Warehouse Association, and South-Eastern Underwriters Association.

Copies of the report are available from the National Board of Fire Underwriters, 85 John Street, New York 7, N. Y.

Non-Slip Floors Lower Costs

THERE has not been enough work by safety experts in reducing the hazards of slippery floors, one of the chief causes of accidents in homes and public buildings, the Greater New York Safety Council's convention was told by Harold D'Arcy, safety and maintenance consultant at Memorial Hospital in New York.

Addressing a building management session, Mr. D'Arcy pointed out that of the 1,816 fatal accidents in New York City homes in 1949, falls were the cause of 1,159 deaths. He said that Memorial Hospital found that slippery floors were causing many of its accidents and were making insurance costs rise. Because of the prohibitive cost of replacing its floor surfaces of many different materials, the hospital undertook a study to find the best way of skidproofing existing floor surfaces at a cost within its budget which would permit easy maintenance and not impair the appearance of floor surfacings.

"We started testing many types of wax and cleaners," Mr. D'Arcy said, "and after many months were making no headway. We then took the next logical step—looked for help outside our own organization. We were informed that there were several committees studying the slippery floor problem in order to prepare a code for safe walkway surfaces. Although most of these committees had been in existence for a long time, they had become sidetracked, tied up with red tape and the net result was a blank."

Eventually, said Mr. D'Arcy, the hospital invited manufacturers of non-skid surface coatings and floor waxes and polishes to supervise application and maintenance of their products on a cost-study basis on different floors of the hospital.

As a result of its own study, Mr. D'Arcy said, the hospital found for its various types of flooring, which included wood, marble, quarry tile and terrazzo, satisfactory materials for those types that in one operation gave better appearance and safety underfoot.

"We today have safety underfoot," he said. "We have reduced our falling accidents to an irreducible minimum. The only ones we still have to contend with are those caused by persons who are incapacitated and would fall on any walkway surface or who deliberately or otherwise disregard warning signs used by our people in every cleaning and polishing operation.

"Our insurance costs were next in line. Since establishing a new system of maintenance, our insurance costs have gone down, and are today the lowest we have ever experienced."

Stressing the importance of keeping walking areas free from extraneous material and loose litter, Mr. D'Arcy said:

"I might say a word here about dust. We have devised a method we call damp sweeping that keeps our floors free of lint and dust. It is so simple that I can not understand why we had not thought of it years ago. It consists of a push broom covered with a piece of cotton cloth and that has been dampened with cold water, and our floors are swept this way. We have completely eliminated all sweeping compounds and dry dust mops. Today we remove the dust and lint, not just stir it up into the air to fall right back on our floors."

New Standard on Multiple V-Belt Drives

THE Rubber Manufacturers Association, Inc. and the Multiple V-Belt Drive & Mechanical Power Transmission Association have announced the completion and issuance of a sixteen (16) page manual of recommended "Engineering Standards for Multiple V-Belt Drives," as developed and approved by the technical committees of both associations.

The "Associations" expect that the new standards manual will be of material assistance to the thousands of users of Multiple V-Belt Drives. The data in the manual is based on the latest engineering opinion and research. The manual indicates the proper sheaves and belts to be used for the attainment of optimum efficiency and economy of the complete drive in relation to the particular duty required.

The standards may be obtained at a cost of $1.00 for two (2) copies from either the Multiple V-Belt Drive Association, 7 West Madison Street, Chicago 2, Illinois, or The Rubber Manufacturers Association, Inc., 444 Madison Ave., New York 22, N. Y.

Treesdale Lab. Appoints

EDWARD V. Karabin has been appointed Sales Engineer for Treesdale Laboratories & Textile Processing Company, Inc., it was announced recently by John A. Beattie, president of the firm. Mr. Karabin will inaugurate a national sales program through safety equipment distributors for flame-proofed fabric currently used for industrial protective products.

Mr. Karabin received his engineering degrees at the University of Pittsburgh, and was formerly a Sales Engineer for Mine Safety Appliances Company with which he was associated for 15 years.

NEW APPROVED PUMP makes liquid handling SAFER

These new Tokheim Hand Pumps are a great boon to industrial safety. They stop wasteful dripping and slippery floors, reduce fire hazard, save on drum storage space, and eliminate accidents common to other methods of liquid transfer. Their fast, easy double-action speeds production, reduces costs. Ideal for handling many liquids. Available in hose and spout models for use with drums or underground tanks.

Approved for use with petroleum liquids — ideal for many others.

FOR USE IN SCORES OF INDUSTRIAL OPERATIONS

For filling oil coolant reservoirs directly from drum.

For refueling lift trucks and other industrial equipment.

For transferring liquids to smaller containers.

QUALITY TOKHEIM DOUBLE-ACTION HAND PUMPS

WRITE FOR LITERATURE

General Products Division
TOKHEIM OIL TANK AND PUMP COMPANY
1672 Wabash Avenue, Fort Wayne 1, Indiana
Factory Branch: 1309 Howard Street, San Francisco 3, California

Automobile Plants Spend Millions For Safety and Health

Many types of safety equipment are made available to automotive employees.

YOU'D need a sizable medicine cabinet to house 1,700,000 aspirin tablets, 1,500 tubes of salve for sore muscles, a half-million cold tablets, 1,500 bottles of citro-carbonate for upset stomachs and 30 tons of protective skin creams, points out a recent issue of "Automobile Facts."

Yet, these amounts of pain relievers and medicines are the annual requirements for the employees of just one automotive firm.

Treatment of such minor ailments is only a small phase of the health and safety activities of the industry.

Thousands of trained people—doctors, nurses, dieticians, hygienists, safety engineers and other specialists—work full time to make automotive plants safe places to work.

Millions of dollars are spent annually to provide the finest in medical facilities and safety equipment.

One company, for example, operates 28 hospitals and 35 first-aid stations, staffed by a corps of 329 doctors, nurses, first aid men, X-ray technicians and others.

In the firm's safety department a crew of experts supervises the installation and operation of more than 2,000 different kinds of safety guards on machines and equipment.

Industrial hygiene specialists roam the company's plants, searching for gases, dust, metal fumes and other potential health hazards. They made 1,861 investigations, 2,343 laboratory checks in the past 12 months.

Despite every precautionary measure, accidents will occur. When one does, automotive safety departments go into action to find out how it happened and what can be done to prevent a recurrence. Carelessness is a large factor in industrial accidents.

According to the President's Conference on Industrial Safety, the human factor is involved in more than 80% of accidents. Over 90% of injuries are of a minor nature.

One automotive executive recently said:

"Safety is more than anything else a matter of education. We provide all kinds of safety equipment, but the big job is to get them used. All of us believe that accidents happen to other people—not to us."

Automotive safety work, however, has paid off in large measure.

Training Leads to Award at Tinker Air Force Base

THE National Safety Council's big prize—the Award of Honor—was presented to Tinker air force base, near Oklahoma City, Okla., for its outstanding ground safety record for 1950.

Maj. Gen. St. Clair Street, deputy commanding general of the Air Materiel command, Dayton, Ohio, presented the award to Maj. Gen. F. S. Borum, commanding general of Tinker, before an audience of several thousand Tinker employees recently.

A feature of the event was the evacuation in 12 minutes of the employees from offices and maintenance shops in the huge three-quarters of a mile long Oklahoma City Air Materiel Area headquarters building. The ceremony was brief and vital defense work at Tinker virtually was uninterrupted.

Tinker air force base, comparable to a city of more than 20,000 population, has an annual exposure of 26 million man hours. Forty-five percent of the total exposure comes in the high hazard category; 24% in the medium class and only 21% in the low risk category.

The award is based on the over all improvement made in 1950 as compared to the 1948–49 average. At Tinker there was a:

66⅔% decrease in over all property damage cost.

48.5% decrease in per capita cost covering all accidents including personal injuries, military and civilian, and property and vehicle damage. (AMC showed only a 44% decrease). Civilian cost per capita was reduced 25.82%, military cost per capita decreased 51.74% at Tinker.

To aid in accomplishing this record, Tinker's ground safety section did this during 1950:

Conducted safety orientation of one hour to 5,812 new employees.

Trained 480 safety supervisors in the eight-hour course, "Safety in Supervision."

Showed safety films to approximately 5,680 personnel. The films averaged a half-hour each in length. In addition, training aids on special subjects, designed by experts and made available by national safety organizations, were used in classrooms.

150 persons were trained in two-hour courses covering special hazardous occupations or materials.

Ground safety representatives conducted safety orientation lectures to 4,800 military personnel.

Capt. Bernard Olson, now in Japan, was ground safety officer during the year in which the records were established.

High Cost of Accidents

INDUSTRIAL accidents in Illinois cost nearly a half billion dollars a year, according to a study just completed by the state Department of Labor. The loss in dollars is aside from the immeasurable toll in human suffering, Director of Labor Frank Annunzio pointed out.

Esther Espenshade, chief of the Division of Statistics and Research, supervised the study, the first of its kind undertaken by the Department of Labor. It was based largely on data of compensable injury cases closed during 1949 by the Illinois Industrial Commission. The Commission is headed by B. J. Knight, chairman.

Total annual cost of on-the-job accidents was estimated at $479,003,000, of which about $300,000,000 was carried by the employers and the remaining $179,000,000 by the workers.

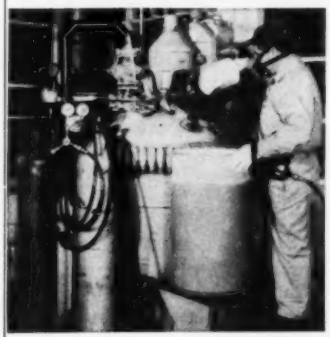
Expenses to employers included estimated cost for work-time losses, property damage, material spoilage and production losses as well as compensation payments, insurance overhead, medical expenses and administrative costs.

The $179,000,000 carried by the employees represented wage losses not paid for completely under the state's Workmen's Compensation acts.

According to the study, there are about 132,000 accidents in Illinois industry each year which result in lost time. Of these only some 48,000 are compensable under the Workmen's Compensation acts.

An injured worker qualifies for compensation under the acts only if he is disabled permanently or loses six or more working days as a result of his injury.

HOFFMAN-LA ROCHE REPORTS "A Wonderful Job" BEING DONE BY Scott RESPIRATORS



HOFFMAN-LA ROCHE, INC. of Nutley, N. J.—manufacturers of chemicals and pharmaceuticals—have several points in their processing where exposure to chemical fumes creates a breathing hazard. They report highly successful results with their use of Scott Demand Respirators. Over thirty Scott units are now protecting their employees against organic vapors and acid gases at these points.

For example, left: This man is required to handle toxic solvents, volative acids and irritating dusty powders in a small area. Scott Respirator supplies needed protection during frequent short exposures.

The next picture shows kettle washing with stream of chloroform. Scott Respirator protects the workman from toxic fumes.

Says the company: "We can assure you that the Scott units are doing a wonderful job, and we can highly recommend their use in other plants."

Take advantage of the time-saving, money-saving benefits Scott Demand Respirators can bring to *your* plant. See your safety equipment distributor about Scott Demand Respirators — *today.*

ESTABLISHED IN 1932 Scott FOR SAFETY - FOR SERVICE

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For Two-Fisted Welders Who Work With Bared Chest

No. 241 Helmet

It's a brand new, one-piece moulded Welding Helmet, made to satisfy the most critical welder.

It is especially designed for men who, during hot weather, work with their shirt open. It has a straight front, long enough to give full protection to the bared chest, yet permits full movement and assures the greatest possible comfort. It is well balanced, can be furnished with any of our three head gears, and with either the standard or special Lift-Front lens retainer.

Here Is a Special Proposition

This is a helmet of such outstanding quality that we ask you to permit us to forward a sample of this No. 241 Helmet on memo for examination purposes. Examine it thoroughly, test it, satisfy yourself that in truth this helmet is what we claim it to be—"one of the best."

There is an old saying that "tomorrow never comes." Write us today for a sample helmet for inspection purposes and for the name of a near-by dealer who can supply you. The helmet will come to you parcel post prepaid.

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Sellstrom Safeguards Your Eyes and Face
656 N. Aberdeen St., Chicago 22, Ill.

What Lighting Can Do

A NEW report, prepared as a public service by The National Information Committee on Lighting, summarizing the vital present-day services of illumination in American industrial production, in public safety, in research and education, and in government, has recently been published.

The 24-page report titled, "Lighting and The Nation's Welfare," involved extensive research. It is broken down into five sections:

Production Lighting: Illumination is indispensable to efficient production. Production increases by as much as 30 per cent have been achieved by proper light. Illumination also reduces eye strain and fatigue as shown by a decrease of 30 per cent in one plant for headache tablets following installation of proper lighting. The importance of proper light in quality control is evident in typical reports showing a decrease in production errors up to 50 per cent. Lighting also assures the safety of production workers both as regards machine operation and movements from one location to another.

Office Lighting: In this instance, lighting has increased worker efficiency by as much as 37 per cent. Proper lighting provides proper working conditions, contributes to greater accuracy, prevents lost time due to eye strain and fatigue, and has a pronounced favorable effect on the workers' psychology and work attitude.

Protective Lighting: The proper use of artificial light in outdoor areas is a most important aid in preventing accidents, theft and sabotage. It reduces risk of fires and makes possible outdoor work at night. Proper lighting facilitates loading and unloading of shipments to and from factories and during transit whether by rail, truck, plane or train.

Public Safety Lighting: Proper lighting of thoroughfares over which people travel, either by car or on foot, is essential for the protection of life and property. In one year of World War II enough man-days of productive time were lost due to injuries attributable to inadequate street lighting to produce 90 destroyers, 17,500 fighter planes, or 3,500 heavy bombers.

Education Lighting: The present and future welfare of the Nation depends to a great extent on the continuation of research, education and training which assures the Nation's superiority in scientific and technological advance. The provision of proper lighting will assure maximum accomplishment in all fields of education and, therefore, maximum contribution to the welfare of the Nation.

This 24-page report also recognizes the contributions of 28 individuals and 14 organizations to the progress of lighting.

In addition to complete statistics on the effects of lighting, this report contains several comprehensive charts and graphs, illustrating many of the important points brought out by this study.

"Of the five senses, none compares with the sense of sight in the extent to which it contributes to the welfare of mankind. Sight is impossible without light and the better the light, the keener the sight," this report summarizes.

The report is available at 15 cents per copy in quantities of 100, and 10 cents per copy in lots of 500 or more. Single copies are available at 25 cents each. Requests should be addressed: National Information Committee on Lighting, 1410 Terminal Tower, Cleveland, Ohio.

Safety Engineer Available

Safety director, author, lecturer of wide experience setting up accident prevention and training programs. Desires position with large industrial concern to install and train employees in safety and security program. Will travel. Location immaterial. Write to Box 153, c/o Safety Maintenance & Production, 75 Fulton St., New York 38, N. Y.

IMPORTANT to Eye Safety

K-LENS-M Modern Liquid Lens Cleaner for Glass and Plastic

K-LENS-M liquid lens cleaner gets eyeglasses and goggles clean for clear vision . . . so important to safety.

K-LENS-M does the job faster, at lower cost, and with less maintenance. Thoroughly cleans glass or plastic eyewear without scratching, streaking, or leaving a film.

The K-LENS-M Dispenser Cabinet is a complete lens cleaning unit, specially designed for easy installation, use, and service.

Ask for the K-LENS-M folder—full information to help you save money on eyewear cleaning.

NEW
Large Size K-LENS-M
Handy Molded-Shape Bottle.
Holds 42% More K-LENS-M.
Economical—fewer re-fillings.
Hundreds of Film-Free Cleanings.

K-LENS-M Dispenser Cabinet

Complete Lens Cleaning Station

Finger-Tip Spray Dispenser—
No air pressure needed.
Dispenses Tissues—one at a time.
Disposal Space for used tissues.
Special Paint Grip Steel Cabinet.
Acid-Resistant Baked Enamel Finish.

THE WILKINS CO.
INCORPORATED
CORTLAND 2, N. Y.

Broken Lenses . . . . . Saved Eyes

DURING the first seven years of the Sperry Gyroscope Company's eye safety program, "not one eye has been lost in our machine shops and foundry, and not one serious eye injury has occurred resulting in partial loss of sight."

But during a nine-month period before the program was started, "a total of six eyes were lost and 56 serious eye injuries were reported, many resulting in partial loss of sight."

This report came at the annual conference of the National Society for the Prevention of Blindness from Dr. Herman Sager, optometrist, who is supervisor of eye service for the Sperry Company. From January through August of 1943, Dr. Sager told the conference, the six lost eyes and 56 serious eye injuries which occurred at Sperry "entailed an expenditure of over $200,000 in direct and indirect costs and approximately 700 work-days were lost."

Since 1944, Dr. Sager continued, "we have accumulated 72 pairs of smashed safety glasses, all of which might have resulted in a potential eye loss. There probably have also been numerous cases where the impact of a foreign body might have been enough to severely damage an unprotected eye, but was not severe enough to damage the safety lens, and are therefore never reported. . . ."

Dr. Sager praised the effects of the Wise Owl Club on Sperry's eye safety program. The Wise Owl Club, which is sponsored by the National Society for the Prevention of Blindness, is composed of industrial workers who can prove—usually by submitting their damaged safety glasses—that their sight was saved by wearing the goggles when an accident occurred.

Dr. Sager pointed out that the Wise Owl Club members, by wearing the insignia of the club on their overalls, serve as a constant reminder to fellow workers that goggles are not a needless nuisance on the job.

In his talk, Dr. Sager outlined the duties of an optometrist in an industrial vision program. Since the inception of the eye safety program, he said he has refracted more than 18,000 employees.

He pointed out that "to properly refract these employees, the optometrist has to make a careful survey of the job demands." Dr. Sager said the optometrist must consider factors of work distance, illumination, eye movements, height of machines, position of employee at jobs, etc. before he can prescribe glasses for the worker.

"There would be no value," he added, "to prescribe glasses for an employee for reading at 16 inches if his job requires a focusing distance of 10 inches.

Free Bulletins & Catalogs
See page 71

TRANSPORTATION

Wrong Side Driving No. Two Menace

MOTORISTS who invade the wrong side of the road were termed the nation's number two highway menace recently by H. Kemper, president of a leading insurance company. The organization's survey of "wrong side" driving, first of its kind ever taken, showed that 7,000 lives were lost in 1950 because of motorists who crossed the center line, he said.

"Excessive speed is the only accident cause that outranks 'wrong side' driving as a highway killer and maimer," Kemper said. "Too frequently, these two driving errors are combined, making the accident many times more serious.

"Our analysis shows that one-fifth of the serious motor vehicle accidents and deaths in 1950 involved drivers who had crossed the center line of the road, between intersections. These motorists ignored the fact that the center line is their life line and paid the price with the lives of themselves, their guests, pedestrians and other motorists."

Kemper said the most dangerous and common "wrong side" practice revealed by the survey is attempting to pass slower moving vehicles when there is not sufficient visible clearance. "This practice occurs on hills, curves, or on straightaways and involves motorists who are too foolish to wait for sufficient room to pass."

Other "wrong side" causes listed by Kemper are: skidding, driving under the influence of liquor, passing double-parked cars or other obstacles, mechanical failures, road imperfections, and "inattention, road wandering and other equally thoughtless reasons for the drivers to be on the wrong side of the road."

Kemper urged a redoubling of efforts to emphasize the hazards of the highways to all drivers.

"In reading accident reports covering 'wrong side' driving, one cannot escape the conclusion that more than 90 per cent of these mishaps could be eliminated by the exercise of reasonable care and common sense while driving," Kemper said. "Reading such reports and noting their tragic results also make one wish we had many more divided highways and one way streets than we have today."

Fleet Supervisor's Training Course

THE Pennsylvania State College will offer its 13th Annual Motor Fleet Supervisor Training Course the week of September 10–14, 1951, on the Penn State campus in State College, Pennsylvania.

The course is for supervisory personnel, such as, driver supervisors, dispatchers, terminal managers, safety directors, and others who are responsible in some way for safe and efficient operation by drivers. There will be lectures and demonstrations concerning a number of topics dealing with records, selection, training, supervision and enthusiasm.

A notebook containing reference materials will be provided. The fee for the course is $20.00. Additional information can be obtained by writing: Professor Amos E. Neyhart, Administrative Head, Institute of Public Safety, The Pennsylvania State College, State College, Pennsylvania.

Civil Defense Traffic Plan

NORTHWESTERN University's Traffic Institute has been selected by the Federal Civil Defense Administration to develop a nationwide traffic control training program for civil defense emergencies. The contract states that the Traffic Institute will "conduct the necessary research and prepare the information and materials necessary to provide and administer a program to train state and municipal police and qualified civil defense workers in the United States in the regulation and control of street and highway traffic for civil defense."

Under the program the Institute will conduct from four to eight courses annually in various regions of the country at times and places to be designated by the Federal Civil Defense Administration. The first course probably will be offered next fall.

"Unrestricted traffic on those streets and highways which remain usable after an attack might greatly increase the proportions of a disaster," according to Defense Administrator Millard Caldwell. "Intelligently planned control of vehicular traffic is of utmost importance in rescue work and in maintenance of services essential to life, such as delivery of food and water. In fact, the very survival of a city's population and its productive capacity may depend on an effective traffic control plan. For this reason we are highly pleased to have the valuable experience and wide knowledge of the Traffic Institute staff in the traffic field made available to us," he said.

Franklin M. Krem *(To page 41)*

In this section of the Flatbush garage, air supply and return ducts are overhead. Discharge outlets are diffusers while the return air intakes are large open duct ends.

Carbon Monoxide Control for Garages

Integrated system provides for automatic warning and control of dangerous CO concentrations.

PROTECTION of workmen against carbon monoxide fumes in four new bus garages of New York City's Transit System is achieved through the use of two types of ventilation control arrangements, both equally as effective and both relying upon the same kind of CO detecting and alarm instruments. The garages, housing diesel and gasoline engine buses, are approximately the same size, each containing some 140,000 square feet of floor area with storage facilities for 200 to 250 buses.

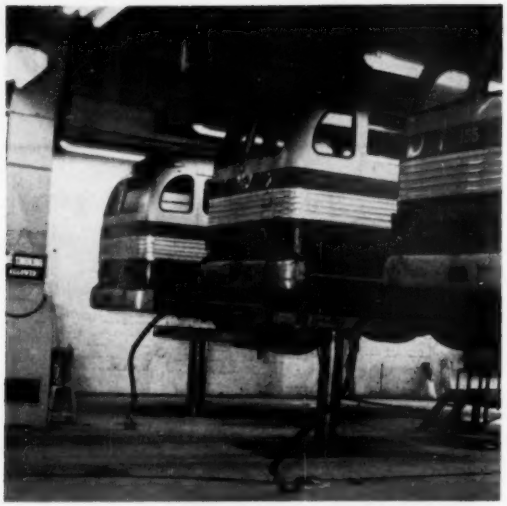
Since carbon monoxide gives no warning, it can strike before its victim is aware anything is wrong. Even when concentrations are so low that no physiological effects are distinguishable, carbon monoxide causes mental apathy and physical logginess resulting in worker inefficiency and susceptibility to accidents. The hazards of carbon monoxide can be overcome by continuous ventilation but usually this is an expensive method, especially in the winter when heating costs have to be considered. Therefore, a reliable ventilation control system has proved to be the most economical and efficient way of safeguarding garage workmen against this hazard.

At the Flatbush and Ulmer Park garages, the heating and ventilating systems are integral. Supply and exhaust fans and steam heating coils are installed in two sheet metal equipment houses in the roof trusses of the garages with ductwork transporting fresh, and recirculated air. Since both these garages are essentially the same design, a description of one will suffice.

The garage area is divided into five zones, each served by an independent heating-ventilating system. One zone is the fuel dispensing area, cut off from the rest of the building by fire walls and automatic fire doors. This area is supplied with 100 per cent fresh air continuously.

The other four zones are arranged to receive 10 to 15 per cent fresh makeup air at all times. Through a program clock control, the systems automatically change from partial recirculation to 100 per cent fresh air once every hour for about 10 minutes. In addition, during peak traffic hours, these systems again operate on 100 per cent fresh air.

Superseding all other controls are sensitive carbon monoxide alarms, developed by the Mine Safety Appliances Company. These instruments continuously sample and test the atmosphere in return air ducts. If the concentration of carbon monoxide exceeds 2 parts in 10,000 (.02%), the system automatically switches to ventilating position. Using no more electrical current than a 100 watt light bulb, these alarms provide full protection against carbon monoxide without the expense of constant venti-



Service hoists in the Flatbush garage. Note tail pipe connections for the removal of the fumes. Every precaution is taken in these garages to protect the workers from the hazards of carbon monoxide.

lation. Therefore, at these two garages, four air changes per hour are provided automatically, with the standby assurance that the alarms will start the ventilating cycle if any excessive concentrations of carbon monoxide are present.

Bus Exhaust Fumes

As a further safeguard, a manual pushbutton control for the fresh air supply is installed in Zone 1, the area where buses are repaired. If the men in this area feel they need additional fresh air, they merely push a button to get it. Exhaust fumes from the buses are removed from the area through flexible metal hose connections to tail pipes. Discharge of this exhaust is into an underground duct system.

Supply air, fresh or recirculated, is transported from the fan houses through ducts led down the building columns. Discharge outlets of these ducts are about 1 ft. above the floor. Louver blades in the outlets are set to swirl the air as it leaves, creating high turbulence.

Supply fan motors in four zones are two-speed units arranged for operation at 1800 rpm, full capacity, or at 1200 rpm low speed. The exhaust fan motors are single speed, 1800 rpm units. In normal operation, the supply fans run at ⅔ speed, the exhaust fan is off, the main exhaust damper is closed, the recirculating air damper is open and the fresh air damper is closed. The exhaust and recirculation dampers are components of a two-position, multi-louvered mixing damper. When either the carbon monoxide alarms, the program timer or the manual switch call for air changes, the supply fan goes on full speed, the exhaust fan operates at full speed, the exhaust damper opens, the recirculation damper closes and the fresh air intake damper opens. The detecting instruments are located in the fan booths.

The CO Alarm

Air samples are drawn into the instruments by small blowers connected to ⅟₄₀ horsepower motors. The sample is forced through a cell containing thermocouples and a catalyst, active hopcalite. Catalytic reaction of this chemical converts carbon monoxide to carbon dioxide. This reaction liberates heat which is measured by the thermocouples and indicated on a contacting meter. When the needle of the meter reaches a predetermined setting (.02 per cent), a magnet pulls it to a stoppost, closing the alarm circuit. The magnet holds it against the post continuing the circuit until a solenoid reset switch is operated automatically after the CO content of the sampled atmosphere is reduced to a safe concentration. Closing the contacting meter circuit energizes a secondary relay to the ventilation control system.

A master control and indicating panel for the entire ventilating system is located in the tool room of the bus garage which is under 24-hour observation. The panel has the following lights for each of the four zones: One lamp showing when the program timing device calls for full ventilating speed; two lamps indicating whether the CO alarms are calling for full speed or low speed, two lamps showing whether the supply fan is operating at low or high speed,

Mounted on wall above return air duct is a carbon monoxide alarm that samples air returned from individual zone. If CO concentration in return air reaches two parts in 10,000, alarm automatically energizes ventilating controls. A buzzer also sounds on a master control panel.

and two lamps indicating whether the damper is in recirculating or ventilating position. There also is a manual control switch for each zone on this panel. A buzzer in the panel is arranged to sound for 20 seconds when the program timer or the CO alarm changes the supply fan motors from low to high speed. On the panel is an emergency stop switch for the entire system. Emergency stop switches also are located near each end of the garage for use in case of fire.

In one sense, the CO alarms also are fire warnings since any fire produces concentrations of carbon monoxide. Theoretically, therefore, if a fire occurred and heat was delayed in reaching the fusible sprinkler heads, carbon monoxide in the atmosphere would be detected quickly and the buzzer on the master control panel would sound.

At the Flushing and Staten Island garages, the heating and ventilating systems are independent of each other. Truss-mounted unit heaters take care of the heating while individual roof fans handle the ventilating requirements. The roof fans are controlled automatically by the same type of carbon monoxide alarms that are used in the other garages. In all, there are 27 alarms strategically located in each garage. Each alarm samples the atmosphere within a radius of 40 feet.

Each exhaust fan operates only when the CO alarm indicates that the concentration in the vicinity has reached .02 per cent, or two parts in 10,000 parts of air. Therefore, unless there is a need for ventilation, power is not wasted running the fans continuously. When the CO concentration has been vented to the outside, the fan goes off. Each fan is powered by a 3 hp motor. Fresh air enters the building through the 10 frequently opened 30-ft. wide doors.

In all areas, except the Inspection Area which is occupied almost constantly, the CO alarm boxes are mounted on the walls 12 feet above the floor. In the Inspection Area, they are 4 ft. above the floor. Manual line starter switches for each fan are located in convenient places throughout the garage.

Exhaust duct intakes are located at floor level to suck air from the lowest areas and exhaust it out the roof.

In a recent test, a diesel engine bus was parked 35 ft. from one of the alarms, its motor running. Within a few seconds, the alarm had picked up the exhaust fumes. The amount of CO in the fumes was sufficient to energize the ventilating fan.

Pictures by courtesy of Mine Safety Appliances Co.

FIRE

Takes No Vacation!

Demand American Safety Tanks on Your New Vehicles- Safety Makes "Cents"

SECURE

exclusive safety features NOT found elsewhere

American Safety Tank Co.

UNDERWRITERS LABORATORIES, INC., A. U., 1302

U. S. PAT. NOS. 2090197 & 2268697

KANSAS CITY 8, MISSOURI, U. S. A.

Civil Defense Traffic

(From page 38) Traffic Institute director, said, "We regard this training program as the most important single undertaking in the Traffic Institute's history and will begin work immediately on its development."

Sunglass Article "Inaccurate"

REPORTS from various optical sources reveal that a storm of protest has erupted over an article appearing in the June 1951 issue of *Reader's Digest* entitled "The Truth About Sunglasses." The reason for scientific dissatisfaction is the belief expressed in the article that the only basic requirement in sunglasses is that they be dark enough to screen out 80% or more of the light. The article states that adequate protection is afforded by sunglasses, provided they observe this single requirement, regardless of price. "It is comforting to know that these cheaper glasses," it asserts, "sold in cigar, drug and variety stores, offer excellent eye protection—*if the lenses are dark enough.*"

In an analysis of the article, Frederick W. Jobe, Director of Ophthalmic Research and Development at Bausch & Lomb Optical Company, Rochester, N. Y., pointed out that lenses produced by the "drawn-glass-and-drop-lens" technique frequently create distortions which potentially are a hazard to safety and in any event often do not contribute to comfort. A test cited to show that cheap sunglass lenses provide substantially as good acuity as lenses which have been ground-and-polished-to-curve gives, in Jobe's opinion, an "entirely erroneous impression since only a small area of the lenses was used. In practice the sunglass wearer permits his eye to move from one portion of the lens to others."

Declaring that the test was so made that it could not have produced dependable results, he said that over a period of years Bausch & Lomb has accumulated data from people who have complained about protective eyewear which has been mistakenly passed by inspectors at the Bausch & Lomb plant. "Here we have a case in point," he explained. "From the nature of the complaints we know that lenses in which surface quality is less perfect than it should be cannot be tolerated. Distortion, vertical prism differences between two lenses in a pair, density differences, or the presence of anything more than a small degree of power are sure to create trouble. They lead to image degradation, eyestrain, headaches —sometimes severe ones—and nausea. Yet these are the optical weaknesses which are characteristic of many cheap sunglasses. Any lens, to have good optical quality, must be ground-and-polished-to-curve and closely controlled in manufacture. Cheap sunglasses simply do not conform to these standards."

Color Distortion

Perhaps the most obvious error made in the article is the statement that tinted lenses seldom change the color of objects. "This is clearly untrue," Jobe commented. "The only adequate lens is one made from a glass which does not sensibly change the color of the image."

It is felt that the article creates a false impression and so gives the public a sense of false security. It is argued that people who read it and buy inferior sunglasses will fail to obtain the one thing they believe they are purchasing: comfort. This is the chief aim of sunglasses and unless they have been made according to accredited manufacturing methods this is precisely where they will fail, say the article's critics.

"We have no fault to find either with the magazine or the author," Jobe concluded. "Undoubtedly the information on which the article was based was inconclusive, a fact which probably was unknown to *Reader's Digest* and the author. It is unfortunate that more extensive research could not have been conducted and more reliable facts stated."

Safety Engineer Available

25 years experience as safety inspector and service supervisor for a State insurance group, planning and assisting in accident prevention programs. Education includes safety courses at NYU and Columbia. Licensed safety engineer. Good references. Prefer safety engineering or safety equipment sales work in New York City area. Address replies to: Box 637, % Safety Maintenance & Production, 75 Fulton St., New York 38, N. Y.

Manual on Cleaning of Mobile Tanks

A NEW accident prevention manual dealing with the cleaning of mobile tanks used for transporting flammable liquids has been published by the American Petroleum Institute. Prepared by the Institute's Safety and Fire Protection Services, the new manual was designed specifically for tank vehicles. Other manuals will be published later applying to skid tanks and tank cars.

The purpose of the new publication is to provide information on how to clean safely, prior to repair, any equipment which is used in the transportation of flammable liquids. Attention is called to the measures which should be taken to protect personnel against harmful vapor concentrations, and to avoid ignition of flammable vapors which may be present during certain phases of mobile tank-vehicle cleaning operations.

The manual is No. 13 in the series of accident prevention booklets issued by the API. Its title is "Cleaning Mobile Tanks used for Transportation of Flammable Liquids; Section A—Tank Vehicles." The manual is priced at 25 cents, with discounts for bulk orders. Copies may be obtained by writing to the American Petroleum Institute, 50 West 50th Street, New York 20, New York.

Safety Institute

THE Pennsylvania State College will offer its Fourth Annual Industrial Safety Institute the week of September 17–21, 1951. The Institute will be conducted on the Penn State campus. Competent speakers from various types of industry will give lectures and lead discussion on a number of topics. Among the items to be discussed are: accident costs; plant protection; fire prevention; speaking and writing for safety; helping the foreman get work done safely; industrial hygiene; women and minors in industry; and keeping the program alive.

Any person who is either partly or fully responsible for accident prevention and related activities in his plant is eligible to attend. The fee is $20.00. Additional information can be obtained by writing Professor Amos E. Neyhart, Administrative Head, Institute of Public Safety, The Pennsylvania State College, State College, Pa.

Cambridge Expands Metal Specialties Div.

THE Cambridge Wire Cloth Company, Cambridge, Maryland, has announced an expansion of the facilities of its Metal Specialties Division. Sales activities will now be under the direction of Wallace I. Pink while Edson Leonard will head the newly created Engineering Department. Everett Creighton remains in charge of the production facilities serving the Metal Specialties Division.

This expanded Division will handle design, manufacturing, sales and servicing of materials handling equipment such as baskets, trays, crates, racks and the company's line of woven wire slings. Filter screens, rotary screens and other specialties designed for screening or filtration will be manufactured and sold by the Wire Cloth Division.

BE FRESH...
STAY FRESH

wear a
Dupor No. 40
The Respirator That is U.S.B. of M. Approved for Type A Dusts

Guards against pneumoconiosis and silicosis producing dusts. Has over 40 sq. in. twin filter area. Sanitary face cloth. Soft rubber face mask. "Controlled breathing" valves. Wearer has a panorama view with no blind spots. Unusual rubber, felt and plastic construction makes it extra durable, no denting or bending possible. Efficiency remains unimpaired even after rough treatment.

Sample sent $3.00 p.p.

wear a
Dupor No. 4
The Respirator For Dust, Fumes, Paint Spray

Double filters provide easy breathing. Soft rubber face mask gives air-tight fit. Sanitary face cloth protects against dermatitis or chafing. Has patented DUPOR valves for "controlled breathing," and panorama view without blind spots. A prime favorite for years!

Sample sent $2.00 p.p.

For the best in eye protection get H. S. Cover's Gas-Tight, Fog-Proof Goggles.. $2.00 pr.

H. S. COVER, South Bend, Ind.

Fire Students

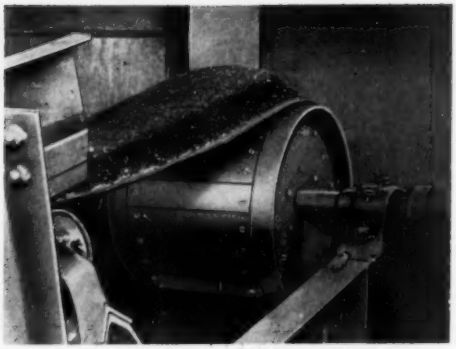
(Page 17) extinguishing material was exhausted.

The two days' training had its element of danger, too. One engineer-student, caught by an unexpected "flashback" of flame, dropped to the ground—and to safety. Shrugging off a small radiant heat burn, he eagerly returned to the fire-fighting.

This enthusiasm was equaled by the other members of the class. One technician commented: "First fire school I've ever seen where we didn't have to coax the students. Why, these fellows *got in line* to fight fires!"

Climax of the field trip came at the end of the class's intensive training. Each man was given a small extinguisher and a special diploma— ". . . for having survived the rigors, tortures and indignities of the fire school."

Pictures by courtesy of Ansul Chemical Co.



Pulverized coal is run over a magnetic pulley to remove the tramp iron which might cause sparking by striking machinery. Installation is at the Pittsburgh Coke & Chemical Company.

Sample of tramp iron in form of wire is shown on inside of plate caught by plate-type magnetic separator. This is in plant of Bakelite Div. of Union Carbide & Carbon Chemicals.

Protection from Sparking

(From page 27) installed a 42 in. (length) unit in a trough through which flowed a nitrocellulose slurry. This magnet, still operating efficiently, shows no need of recharging, ever. It affords all the protection necessary.

During the past seven years scores of magnets of every size have been used for many types of explosives applications: wet, moist, or dry.

The most common plate-type magnets are usually found at the bottom of a chute, spout, or hopper. Any tramp iron (wires, bolts, nuts, nails, etc.) found in the material is pulled to the magnet and is strongly held until it is manually removed.

Installations have also been made above powder traveling on a belt, and on the hoppers of mills or grinding units.

Pictures by courtesy of Eriez Manufacturing Co.

Chemical Plant Safety

CHEMICAL plants are among the safest places in the country in which to work, according to figures released recently by the Manufacturing Chemists' Association, Inc. A record low of 4.56 injuries per million man-hours worked was achieved in 1950 by the Association's member companies, which account for about 90% of total U. S. chemical production.

"This accident rate is less than half the national average," Dr. A. G. Cranch, chairman of the Association's safety committee said," and lower than that of any other industry except communications."

Chemical injury rates have been substantially below the average for all industry for many years, according to Dr. Cranch, "but chemical plants have made especially notable progress in reducing industrial injuries since 1946." The average rate for the Association's member companies has dropped 40% during the past five years. Dr. Cranch attributes this record to improved safety measures adopted in the industry and to good cooperation by employees in observing safety rules and precautions.

The collection and dissemination of statistics on chemical plant safety has been an activity of the Association's general safety committee for a number of years. This committee is also actively engaged in keeping the industry informed of latest safety techniques. With the assistance of the Association's medical advisory committee it has prepared thirty-nine chemical safety data sheets. These are used by industry throughout the world as authentic sources of information on how to handle chemicals safely and what to do in the way of first aid and medical treatment in case of accident.

Other Association safety activities include issuance of reports on accident trends, details of unusual accidents, and other information to assist member companies in maintaining the effectiveness of their safety programs.

Small Plant Maintenance

(From page 15) operate with all-around mechanics plus a few men with the special skills absolutely essential to maintain production.

6. Because the *total* maintenance cost must be kept in line with plant income.

Thus it is seen that even with the best of maintenance planning, scheduling, and personnel there must be a problem.

Unfortunately, in far too many small plants, the maintenance problem is acute. There are too many production delays, too high production costs, too low quality, and too low morale. Management may not recognize that its maintenance

program is a basic cause of these conditions, or it may realize that fact but does nothing permanently constructive about it because "they are not big enough to afford it."

A small plant can well afford a maintenance program developed through purposeful thought to meet its specific needs. But first, a small plant, plagued by the results of inadequate maintenance, must correct these adverse operating conditions:

1. Continuous operation at high production.
2. Improper operation of equipment.
3. Carelessness in the operation of equipment.
4. Failure to report minor machine trouble.
5. Insufficient maintenance personnel—every job a makeshift job because every job a rush job.

Let the Management of a maintenance-plagued small plant correct these operating conditions, and it will find that a good maintenance program has been well begun, and can be well afforded.

WHAT Is the Problem?

What is the maintenance problem of the small plant? It is the same as for any plant, regardless of size, because any type of product in any size quantity requires buildings, services, and production equipment to produce it. The problem is one of maintaining:

1. The steam engineering equipment.
2. The electrical engineering equipment.
3. The mechanical engineering equipment.
4. The buildings, and the service equipment.

The WHAT of the maintenance problem is, therefore, the sum of the maintenance required for each piece of physical equipment. The Equipment Record Card gives the answer to the WHAT. The small plant has the same need for a record of its physical assets as the large plant. Elaborate as the record can be for the large plant, it must contain the basic information for the small plant. A large plant with 25 milling machines can well afford to keep records in sufficient detail to show what make holds up better, and where, and how, for replacement consideration. The small plant with a couple of millers must at least know the total maintenance cost on each as it accumulates year-by-year in order to know when a replacement will pay off by a reduction in the actual expenses to repair, the bother of minor repairs, and the trouble of major shut-downs.

The Equipment Record of each integral piece of equipment should include this information:

1. Its complete identification.
2. A list of drawings and bulletins pertaining to its operation and maintenance.
3. Its location in the plant.
4. Its service requirements for

(Continued next page)

Clean...Dry...*Slip-safe* Floors IN JUST 90 SECONDS!

HILD System of Shower-feed Scrubbing and Vacuum Drying cleans up every danger spot

So speedy is the HILD System that dangerously dirty floors can be scrubbed during working hours without interrupting machine operation for more than 90 seconds. And that means scrubbed *thoroughly!* Both the HILD Shower-feed Floor Machine and the HILD Portable Vacuum are designed to reach hard-to-get-at areas beneath and between machines. Action of the HILD Shower-feed Brush quickly loosens stubborn grease and slippery oil. The HILD Vacuum then *instantly* and *completely* suctions up the dirty scrub-soap solution. Floors are left clean, dry and *slip-safe*... without rinsing or mopping. Total time elapsed—JUST 90 SECONDS!

Only HILD has the Patented Shower-feed Brush

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efficient operation.

5. Its maintenance requirements.

6. The length of service or hours of operation when it should be overhauled.

7. The record of actual maintenance work, with the reason of each repair given in detail.

On the basis of the summaries of the data of the Equipment Record, the management of the small plant has these decisions to make:

1. On what equipment shall the production personnel assume joint responsibility with the maintenance personnel for its overall long-run performance?

2. What equipment shall be the exclusive duty of the maintenance department to maintain?

The last step to complete the WHAT of the maintenance problem of the small plant is to:

1. Prepare the list of what equipment is to have preventive maintenance inspection.

2. Prepare the list of what equipment is to be overhauled.

3. Develop a system to know at all times WHAT maintenance work is required; as found by preventive maintenance inspection; as scheduled for overhaul; and as requisitioned by production and service supervisors.

From an address presented at the Second Plant Maintenance Show, Cleveland, Ohio.

To be continued in the September issue.

Eye Safety

(From page 22) authorities estimate that as many as 5,000 suffer some permanent visual loss. For many of these men, their injury means a lifelong reduction in pay—a reduction which is not nearly balanced by compensation payments.

"However, if we only consider the cost of eye injuries in compensation payments, medical bills and lost production, it is at least $250,000,000 a year for labor and management.

"We know that 90 per cent of our annual 300,000 industrial eye accidents can be prevented. Complete, well-coordinated vision programs can accomplish this goal—and it's a goal that we must at least approach in the near future, for America's most powerful weapon is her industrial potential. Any internal defect which weakens that potential will also weaken America during the days of crisis which lie ahead."

Stymied Safety Program

(From page 26) effect, a Safety Committee in himself. Let one man neglect to use his goggles, or a respirator, or other protective devices when he should, or let him commit some other safety offense, and the men working with him soon remind him that he is endangering (a) himself, (b) the safety record of his group, and (c) the safety record of the Mill.

The contest year of 1948–49 when the National Safety Council Award was won by Tyrone Mill with a frequency rate of .59, was one of full and uninterrupted production in the pulp, paper and chemical operations carried on here. An average of 820 employees had worked for 1,694,184 manhours with only one disabling injury. This injury did not occur on an operating job. It was received during the performance of an infrequent, and minor, maintenance job, in a remote portion of the mill property not frequented by operating personnel.

A special "laundry" cleans respirators worn by employees in certain operations. Here, the Bleach Plant's "laundryman" removes the casing on a respirator to extract the chemical cartridge through which air is filtered. He will next "dunk" the respirator in a cleaning solution, after which it will be sterilized and dried. Then, a fresh cartridge will be inserted. Through an identification system, workmen can have their "personal" respirators "laundered" for them daily.

In July, 1949, Robert K. Meredith, was named to a full-time position as Safety Director at Tyrone Mill. In connection with improvements made in safety at the Mill, Mr. Meredith reports:

"There is no complacency by anyone—management or employees—about accidents. We study each accident report very carefully. When we determine the cause we guide our program of education accordingly.

"One great help to our Safety Committee is that every employee in the Mill has been thoroughly trained in the use of the various items of safety equipment, protective devices and instruments that come within the scope of his work. Although we have a permanent Safety Committee—and member-

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ship on this is keenly sought—in effect every employee at Tyrone is a member of the committee. Each man is responsible for the safety of his fellow workers, his own safety and that of the plant.

"No one here looks on safety measures or safety devices merely as fancy trimmings. The men have learned to appreciate what these things mean. They know how to do their individual jobs the way they should be done, and they translate their own desire for safety into consistently safe work practices."

Pictures by courtesy of Mine Safety Appliances Co.

Invisible Light for Protective Lighting

"PROTECTIVE lighting of critical industrial plants should include invisible as well as visible light," said Carl F. Jensen of the Westinghouse Electric Corporation at the recent Clinic On Protective Lighting held at the Chicago Lighting Institute, Chicago, Ill.

Mr. Jensen stressed that while engineered protective lighting and a high level of illumination are most important, they are not, in all cases, sufficient for detection of saboteurs or sneak thieves within the industrial plant. As a detecting aid, he suggested the use of invisible light, either in the short-wave radiations (ultraviolet), or long-wave radiations (infrared).

Many chemicals are invisible in normal light but glow brilliantly when subjected to invisible blacklight (light energy in the 3600-angstrom region). Some of these glow only during activation (called fluorescent materials), while others glow after the activating energy is removed (phosphorescent). Most fluorescent materials are harmless to humans but, in effect, sudden death to sabotage.

These invisible materials cannot be brushed or washed away. Documents treated with these chemical compounds make indelible marks on the user's hands, and a blacklight inspection at the plant exit tells the story. Under blacklight inspection, treated employee badges will disclose any tampering. Lunch boxes opened after lunch-period inspection, can be detected either by fluorescence or lack of fluorescence on the tape used to seal the boxes.

At the other end of the spectrum is infrared light, a valuable protecting aid at night. Proper use of an invisible beam of infrared can aid detection of saboteurs in spite of darkness—whether natural or caused by power failure. Infrared telescopes, located at strategic points throughout the plant, can provide all-seeing eyes for guards and watchmen by helping them to inspect shadowed areas. Also, infrared can be used as an invisible barrier in combination with photo-electric cells—when the beam is broken, an alarm sounds at the plant-protection headquarters and gives location of the intruder.

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SAFETY MAINTENANCE & PRODUCTION Salutes a Safety Idea for AUGUST

LOOK OUT FOR THE IMPS!

THE Linde Air Products Co., in a recent issue of "Linde Tips," has cleverly used a family of imps to dramatize the accident hazards in the incorrect and careless use of gas cylinders:

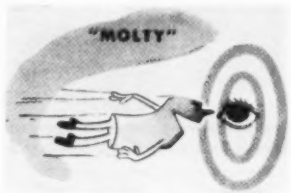
Some welding and cutting shops are inhabited by imps. These imps love to work—especially in shops that handle oxy-acetylene apparatus carelessly. In these shops, the imps are always looking for something to do. They love to tangle hose, get oil, paint, or grease into hose connections, push your hand so that cylinder valves are opened too quickly, and do many other things to start trouble. And sometimes serious accidents.

You can't see these pests. They work very fast. But you can prevent them from operating. All you have to do is familiarize yourself with their habits and operations. Once you know how to prevent them from working, they'll disappear quickly and permanently.

Here are several trouble-makers. Study their habits, then, to snuff them out follow the suggestions:

Meet "Greasy" . . . he's made up of oil, paint, and grease spots. The first chance he has, he likes to get into a hose connection, then you had better look out!

How to Rid Your Shop of Him: Never keep oil, paint, or grease cans near oxy-acetylene apparatus. Wipe up oil spots, and keep hose and all apparatus off the floor. And never oil regulators, blowpipes, cylinder valves, or any other oxy-acetylene equipment — he'll disappear!



Here's "Molty" . . . he's pretty hot stuff . . . he keeps flying off that piece of metal you cut . . . thinks your eye is a target and usually has an accurate aim.

Eliminate This Pest by Wearing Goggles. As soon as he learns he can't get through the lens, he won't bother you. But he keeps trying and hopes you will let down your guard.

"Sparky" . . . he's "Molty's" brother . . . likes to lodge in pants cuffs, and other places. Also likes to reach flammable materials so he can start costly fires.

You Can Get Rid of Sparky by keeping your pants cuffs rolled down and by cleaning up flammable debris near cutting and welding areas. If you can't move the hazard, move the welding or cutting job. Keep fire extinguishers, sand, or water handy.

"Fumy" . . . the imp that makes you sick when you cut or weld galvanized iron, or iron or steel that is coated with lead or a paint that contains lead.

Prevent "Fumy" From Making You Sick by wearing any suitable air supply respirator made for this type work.

"Whamo" . . . the muscular type of imp. He just waits around until a cylinder is stored near a furnace, a radiator, or any other source of heat. Or, when a cylinder is allowed to come in contact with live wires, third rails, or ground wires from electrical equipment. If you're around at the time, he'll give you a ride.

Keep Him Out of Your Shop by storing oxygen and acetylene cylinders in approved, safe places away from heat and electrical wiring.

In addition to the imps reproduced here, the Linde article also shows three other trouble makers:

"Squirmy" . . . he's the imp that tangles hose when you're not looking.

Handle Him by storing hose on a reel when not in use. It's convenient and safe.

"Wormy" . . . always loosens

the tape connection you made on that torn piece of hose.

Get Rid of This Pest by replacing the leaky hose with a new section.

"Stupy" . . . he starts trouble when oxygen is used as a substitute for compressed air.

You Can Forget "Stupy" by remembering not to use oxygen in pneumatic tools, in oil pre-heating burners, to start internal combustion engines, to blow out pipe lines, to "dust" clothing or work, for all kinds of pressure tests, or for ventilating purposes at any time.

Pictures and story by courtesy of Linde Air Products Co.

Safety Conference & Award for Alaskan Army Units

TRAFFIC control and auto accident prevention were the main topics for discussion during the Fifth Annual All-Alaska Accident Prevention Conference held at Elmendorf Air Base recently. Five specialists in that field addressed the 75 representatives of government agencies attending the conference.

Host to the visitors was Brigadier General Walter R. Agee, Base Commander. Mr. Harold A. Gaasland, Safety Director, U. S. Army, Alaska, was Chairman of the conference.

Motor Pool Officer Lt. James E. Martin, Headquarters Company, United States Army, Alaska, addressed the group on winter driving accident control. City Traffic Engineer Charles A. Wilson explained urban traffic accidents in Anchorage, Alaska. Control of accidents was the topic of an address by Capt. W. T. Connor, Assistant Provost Marshal, USARAL. Highway accidents in Alaska were described by Lt. Wesley Gilman, Alaska Highway Patrol. Following a discussion, the group heard from Mr. Donald S. Buck, Assistant Safety Director, Department of the Army, Washington, D. C.

Fire prevention, materiel handling, sports and games accidents, and accident psychology were other topics of the conference.

The conference was opened with an address by Lieutenant General William E. Kepner, Commander-in-Chief, Alaskan Command. He emphasized that top command is whole-heartedly behind the accident prevention program, and strongly endorses an active safety plan by every installation and unit in the Alaskan Command. He likened accidents to saboteurs, declaring that numerous accidents cripple our defense program.

Major General Julian W. Cunningham, Commanding General, U. S. Army, Alaska, urged active support of accident prevention programs, and the adoption by units of his command of suggestions presented at the seminar.

Exchange of ideas and discussion of problems with personnel is advantageous to any such program, Major General William D. Old, Commanding General, Alaskan Air Command, told the group.

Attitude as a key to accidents was the topic of Mr. Buck, who pointed out that improper attitude on the part of the individual increases the likelihood of accidents.

The National Safety Council's

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award of honor for distinguished service in safety for the year 1950 was also awarded recently to the United States Army, Alaska. To mark the occasion an inscribed plaque was presented by Mr. Donald S. Buck, Assistant United States Army Safety Director with the Department of Army, Washington, D. C.

The plaque was accepted on behalf of the personnel of the United States Army, Alaska, by Major General Julian W. Cunningham, Commanding General. Lieutenant General William E. Kepner, Commander-in-Chief, Alaska Command, was present at the ceremony to extend congratulations to General Cunningham and members of his Command. Among officials of the Command present was Mr. H. A. Gaasland, Safety Director for USARAL, who guided the 1950 program which merited the award.

Mr. Buck presented the plaque with best wishes to the personnel of the United States Army, Alaska, and lauded their record of safety improvement. He stated that the award is given for achieving a marked reduction of accident rates in all phases of accident prevention over the previous two years. Qualifying for such an award is very difficult.

This is the second time in four years that United States Army, Alaska, has received the Award of Honor for Distinguished Service to Safety. The first award was received in 1947.

Capt. J. N. Parrott Retires

CAPTAIN J. N. Parrott, Executive Manager of the Inter-American Safety Council, retired from active duty on July 31st. Prior to his appointment as Executive Manager in October 1941, Capt. Parrott began his affiliation with the Council in 1931 as Assistant to the President.

A graduate of the Massachusetts Institute of Technology in 1909, he was appointed a lieutenant in the Engineering Corps, U. S. Army in August of that year and ordered to the Panama Canal where he served as Engineer in charge of safety and personnel of the Panama Canal and the Panama Railroad from 1909 to 1917.

Upon our entry into World War I, Lieut. Parrott obtained his captaincy and was ordered to France. During that War, he was promoted to the temporary rank of Lieut. Colonel and returned to the United States with an appointment in Puerto Rico as Military Aide to Governor Yager.

Following this assignment, he was in charge of safety for various operations of the Engineering Corps, U.S.A., retiring from the Army in 1930, later serving with the Safety Department of the Consolidated Edison Co., until 1937.

As the author of several books on safety written in Spanish for the Latin American countries, Capt. Parrott has gained an enviable reputation as a pioneer in bringing the multiple advantages of accident prevention to the attention of government heads, private companies and the general public of the republics of Latin America. He is a member of the Veterans of Safety, Vice-President of the Association of Safety Council Executives and a member of the American Society of Safety Engineers for whom he has served on the Advisory Board of the Metropolitan Chapter. He is also a member of the Pan-American Society, serving on a Committee covering Honduras.

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Plant Safety Vital to Defense

VIGOROUS and continuing industrial safety programs can save an estimated 13,000,000 man days for the nation's defense effort in 1951, it was stated by Joseph C. Stennett, director of accident and fire prevention for an association of accident compensation companies.

But such a program "must be launched immediately," Sten-

nett said, if it is to help attain the "goal in 1953 of reasonable national safety against aggression." If all industry would establish safety programs with the same enthusiasm and success that some of our leading industries have, he added, the saving of 13,000,000 man days this year could be achieved.

"The two year program of Charles E. Wilson, director of defense mobilization, calling for an additional 3,000,000 to 4,000,000 new defense workers, longer hours of work and possibly a 44-hour week in some industries, also calls for a strengthening of industrial safety programs," he said.

Stennett pointed out that the tremendous influx of untrained workers into our defense plants will greatly increase the probability of accidents.

"Top management, safety engineers, insurance companies and all others concerned should step up emphasis strongly on their indoctrination programs for new workers to help conserve life and limb," he added. "The government itself might well consider placing in its defense contracts special emphasis upon the development and maintenance of adequate safety facilities and programs."

Stennett said more than 40,000,000 man days were lost to the nation in 1950 because of worker injuries—the equivalent of a year's full time employment for 134,000 workers. He warned this figure would be "sharply higher" in 1951 unless industrial safety programs, keyed directly to the nationwide defense effort, are immediately undertaken.

Insurance companies have proved that an effective safety program can increase production greatly. Also, by reducing losses, it enables the insurance companies to return substantial premium savings to their policyholders.

"As a result of long experience in developing and promoting safety measures, we know that literally millions of man days can be saved by well-planned programs of factory safety."

Stennett outlined a four-point program which he said would contribute greatly to the attainment of Mr. Wilson's mobilization objectives. He urged (1) top management must assume responsibility for effective safety programs, (2) proper orientation by job training through job analysis, (3) indoctrination of both workers and management of the need for maximum production, and (4) insistence that proper safety precautions be observed in production under defense contracts.

"This program," Stennett said, "will serve to increase production, reduce the difficulties of recruiting new workers, and cut operating costs. A real and substantial contribution to the defense of the country can be made."

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The Future Shows

York Harbor, Me.

September 6–7. Twenty-fourth Annual Maine State Safety Conference & Exhibit. (Marshall House). Arthur F. Minchin, secretary, Maine Safety Conference, Dept. of Labor & Industry, State House, Augusta, Me.

Cleveland, Ohio

September 18–20. Ohio State Safety Conference (Hotel Carter). Carl L. Smith, executive vice-president, Ohio State Safety Council, 2073 E. 9th St., Cleveland 15, Ohio.

Houston, Texas

September 27–29. Fourth Annual Gulf Coast Regional Conference on Industrial Health (Rice Hotel). David M. Wood, conference chairman, Houston Chamber of Commerce, P. O. Box 2371, Houston 1, Texas.

Chicago, Ill.

October 8–12. Thirty-ninth Annual National Safety Congress and Exposition. (Congress and Stevens Hotels). R. L. Forney, gen. sec., National Safety Council, 425 N. Michigan Ave., Chicago, Ill.

San Francisco, Calif.

October 29–November 2. Seventy-ninth Annual Meeting American Public Health Association. (Civic Auditorium) Dr. R. M. Atwater, executive secretary, American Public Health Assoc., 1790 Broadway, New York 19, N. Y.

For Information
on Advertised Products
Use the Check List—Page 76

Industrial Truck Safety Standards

SAFE practices in the design and use of industrial power trucks have been established by a nationwide agreement among users, safety engineers, and manufacturers of these trucks, it is reported by the American Standards Association. The recommendations, representing a consensus of all who are substantially concerned, have been published as a Safety Code for Industrial Power Trucks and approved by ASA as American Standard (B56.1-1950).

The standard applies to industrial trucks of both the driver-ride and driver-lead types, such as platform trucks, tractors, low-lift trucks, high-lift trucks, fork trucks, and special purpose trucks. It does not apply to motor vehicles intended for operation on highways.

The development of these standard practices for safety was proposed in 1946. The purpose was to promote safety of personnel and equipment by establishing authoritative and uniform fundamentals in setting up rules for the operation and maintenance of industrial trucks, based on years of experience.

Through establishing uniformity of operating controls and safety devices for all industrial trucks, manufacturers of trucks also contemplated avoiding excessive production costs and selling prices. Thus, adoption of the code in full or in part by states and municipalities instead of their own independently devised safety codes with their varying requirements, would avoid the necessity for "custom building" of industrial trucks. This would result in lower-cost production methods by manufacturers and savings for purchasers.

The new standard is in no sense obligatory upon anyone except as it may be adopted by legislative bodies. It is intended to provide a uniform basic code and a guide for state, municipal, and other governmental authorities in formulating safety rules and regulations. The significance of its approval as American Standard is its guarantee that every group substantially concerned with the code has been given an opportunity to participate in its development. As an unbiased document on which there is nationwide agreement, it represents the best available thinking, experience, and engineering.

The new standard was developed under the technical leadership of The American Society of Mechanical Engineers. Membership on the formulating committee included representatives of more than 20 other national organizations, such as Electric Industrial Truck Association, Materials Handling Institute, National Safety Council, Congress of Industrial Organizations, U. S. Department of Commerce, National Electrical Manufacturers Association, American Society of Safety Engineers, International Association of Governmental Labor Officials, and fire and casualty insurance organizations.

Safe Operation

The standard is also intended for direct use by concerns manufacturing or utilizing industrial power truck equipment. For this purpose it summarizes requirements for safety in design and recommends practices and rules for industrial truck operation. The latter are based upon those that have been formulated and used effectively over a period of years in many manufacturing plants and warehouses where fleets of industrial trucks are operated.

In this connection the standard points out that "the use of industrial power trucks is subject to certain hazards that cannot be overcome by purely mechanical means but only by the exercise of intelligence, care and common sense. It is, therefore, essential to have compe-

tent and careful operators, physically and mentally fit, and thoroughly trained."

The standard consists of an introduction and three parts. The introduction defines and illustrates types of industrial trucks, scope and purposes of the code, and gives a bibliography of related safety codes. Part I gives minimum requirements of construction and design features, such as safety locks for forks, operator's platform guards, wheel and chain guards, automatic brakes, and enclosures for electric controls and motors.

Part II outlines general safety regulations, such as qualification and training of operators, battery charging and changing facilities, marking of aisles, and lighting of operating areas. Part III gives specific safety rules and regulations that have been adopted in part or in full in many industrial plants and warehouses.

The new American Standard B56.1-1950 (price 85 cents) is available either from American Standards Association, 70 E. 45th St., New York 17, or from The American Society of Mechanical Engineers, 29 W. 39th St., New York.

Lighting Award Contest

FIRST details of the recently announced 1952 Merit Award Competition, sponsored by the 4th International Lighting Exposition, were released by G. T. Morrow, Chairman of the Merit Award Committee. "The purpose and objective of the 1952 Merit Award Competition as well as the 4th International Lighting Exposition, to be held in Cleveland, May 6–9, 1952, is to help mobilize lighting knowledge for a stronger America from the standpoint of the latest equipment, installation methods, and application techniques," says Mr. Morrow.

This competition affords an opportunity to receive the industry's highest recognition for outstanding lighting installations with 25 Gold Seal Awards and additional Merit Award Certificates, and also an opportunity for successful entries to be exhibited in the Court of Honor at the 4th International Lighting Exposition and Conference.

Inviting all to enter, and help "Mobilize Lighting Knowledge to Advance America's Welfare," the Chairman urged prompt application for official entry blanks which are now available to Electrical Contractors, Utility Lighting and Power Representatives, Electrical Distributors' Lighting Specialists and Salesmen, Architects and Consulting Engineers, and Owners and Users of Industrial and Commercial Lighting.

Requests for application blanks and copies of official rule booklets should be addressed to: Merit Award Competition, 4th International Lighting Exposition and Conference, 326 W. Madison Street, Room 818, Chicago 6, Illinois.

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Fire Extinguisher Servicing Stations

MORE than 350 stations within the United States and 225 located in 59 different countries abroad are available for servicing and recharging of carbon dioxide fire extinguishers, according to Paul W. Eberhardt, vice-president of Walter Kidde & Company, Inc., leading manufacturer of carbon dioxide fire protection equipment.

Mr. Eberhardt said, "While the majority of these stations were a part of the network five years ago, increasing use of carbon dioxide fire extinguishing equipment throughout the world has required constant expansion of the system. Except behind the Iron Curtain, almost every country provides facilities for the recharging of cylinders."

He explained that the popularity of carbon dioxide as an extinguishing agent stems from the fact that it smothers fire immediately and, being an inert gas, cannot harm machinery, food, or electrical equipment. Further, it leaves no mess to be cleaned up after the fire is out.

Especially written for safety inspectors and maintenance supervisors directly responsible for the safety of press operators, "Power Press Protection" is yours for the asking. Contains valuable information on the maintenance and safe operation of power presses. Send for your copy today.

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Blindness Lasts A Long Time

(From page 19) completely what you have set out to do . . . and for this reason many safety authorities strongly favor it.

Yet, for one reason or another, many safety directors will not or cannot use it. This does not mean that their efforts are hamstrung. They will have a constant struggle on their hands. But they can still do a vigorous and successful job; they can still get the majority of their employees to wear safety glasses.

How is this accomplished? It is accomplished by persuasion, by "selling" the employee on the necessity of constantly protecting his vision. All kinds of methods have been used. Safety directors have carried glass eyes around with them, and, on spotting employees exposing their eyes to flying fragments, splashing acid, harmful light rays and other hazards, have unpocketed their weird cargo: "Pretty isn't it? Of course you'd want a brown one—maybe a pair of them. Trouble is, you can't see with these things. Look, Bud, take a tip from me. Put on your safety glasses." They have displayed broken safety lenses in hazardous work areas: "Better a broken lens than a lost eye. Wear your safety glasses." One well-known safety man carries with him a bottle of pickled eyes, which he obtained from a local hospital. Needless to say, this gruesome exhibit has a chastening effect on hard-boiled employees who thought they knew better.

Expert Help Available

This "scare" method, however effective it may be, is not always felt to be in the best taste. It represents a drastic effort to bring vision to the mind of the worker as well as to keep him physically in possession of his eyesight by means of hardened lenses, side shields, rugged frames. For those who find the macabre approach to selling eye safety distasteful, other effective techniques can be used.

Typical poster designed to make employees alert to eye hazards.

For example, there is the professional type of "persuasion" campaign put out by various organizations, including optical companies. The eye safety compaign made available to industrial plants by our company consists of:

1. Plant bulletin board posters
2. Public address system scripts
3. Employee publication stories and pictures
4. Pay envelope pamphlets
5. A quick guide to the selection of correct safety glasses for different jobs and occupations.

Some of these pieces are illustrated in this article. The poster —"A glass eye is no bargain at any price": a tray of assorted glass eyes—tells its own story. This is one of a series of posters and their message is absorbed at once. They are intended to be placed on plant bulletin boards, or taped to walls. They are reproduced in color with large type that is easy to read. They tell the employee what the

safety director would tell him. Forceful, they pull no punches.

It is lunch period. Hundreds of employees are eating in the company cafeteria. Suddenly the public-address system goes into action: "Yesterday a pair of safety glasses was destroyed in Department IR! But a pair of eyes was saved! It happened in a split second. Frank Smith was at work on a profiling machine when an accident occurred which might have been disastrous. Frank might have lost his eyesight, but he was wearing his safety glasses. . . ."

Later in the day the company publication is distributed. "Eye Opener" says a headline. "Have you ever imagined you were totally blind? Try it. Press your hands over your eyes and count to ten. Imagine going through life that way. Now, while you're 'blind,' imagine how you will actually move across the room, out the door and down the street to board a bus or trolley. Don't bother figuring out how you'd drive your car or how you'd go hunting or fishing, or take in a show or a ball game, because those things are all over for you. You're blind now . . ." One or more illustrations can go with this: your editor might pick one of a man wearing dark glasses, his hands clutching air as his wife and daughter walk out into the light of the corridor.

The next day the employees receive their pay envelopes. They contain more than money. In them is a little pamphlet entitled "I Passed a Blind Man Today" which is designed to impress employees with the personal loss accompanying loss of sight.

All these pieces, and many others like them, are available for the safety executive in large quantities and from many sources. Advice, help, special campaigns are freely and eagerly supplied.

96,000 Eyes Lost

The point, by this time, should be fairly clear. Unless you have or can have a mandatory eye-protection program, you must persuade and persuade again. You must sell; you must convince. You must be unceasing in your efforts; you must put down opposition which will be constant and untiring. *You can do it.*

Your obstacles are employee complaints and indifference due to a lack of understanding; you must meet them with honest answers. You must place posters everywhere, see that your house organ editor is in there pitching, engage the interested help of your payroll department, keep broadcasting safety messages over the public-address system. You must do everything that it is possible for you to do. When employees object to wearing safety glasses for one of the numerous reasons they will strongly and feelingly advance, you must be ready with the answers. If you don't know all the answers, get suggestions from any reputable manufacturer of safety eyewear. You must save eyes with glasses that are correctly ground and polished, properly adapted to the job, scientifically fitted for utmost comfort—glasses that really protect.

Every year 300,000 U. S. employees receive eye injuries; 1,000 lose the sight of one eye and 100 the sight of both; every working day 1,000 employees are afflicted with eye injuries. There are in this country 8,000 workers who have been totally blinded by industrial accidents; 80,000 who have lost the sight of one eye. Yet ninety-eight per cent of these accidents could have been prevented. Ninety-eight per cent! Here is a terrific responsibility; it is not to be taken lightly. The price paid is too costly to be met with indifference. A job can be done; it requires intelligence, initiative and zeal. It must be untiring. With the united help of the country's safety directors it must and can be successful.

Blindness lasts a long time!

Pictures by courtesy of Bausch & Lomb Optical Co.

Your Constant Protector

Offers you the opportunity of having your operating facilities fully protected 24 hours a day with KEEFE automatic dry chemical fire extinguishing systems.

No longer worry about loss of production, loss of building and equipment and loss of materials from fire and water damage. Be constantly protected with the KEEFE fully automatic dry chemical fire extinguishing system. Do it now . . . let our engineers recommend the best system for your needs.

Start of propane gas fire in cylinder charging plant. Flame instantly reached a distance of 20 feet.

Fire was completely extinguished within 9 seconds and entire room was saturated with dry chemical so that no fire could exist in the area.

Our Engineering Services and advice are available to you without cost or obligation.

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Safety in Atomic Energy Plants

IF GIVEN our choice probably most of us would rather work in a less hazardous place than an atomic energy installation. Yet, according to the record, atomic laboratories have proven far safer than say, chemical or munitions plants.

This fact was made known in a paper by George G. Manov, chief, and David O. Lintz, health physicist, Advisory Field Service Branch, Isotopes Division, U. S. Atomic Energy Commission, Oak Ridge Operations Office, Oak Ridge, Tenn., which was presented at the 70th annual meeting of The American Society of Mechanical Engineers at the Hotel Statler in New York. Declaring that the increasingly widespread use of radioisotopes (radioactive by-products of atomic energy), has presented a potential health hazard, the paper explained in detail methods which have been found effective in the safe handling of radioisotopes at large-scale installations.

Although protection from the dangers of radiation is unlike the majority of problems usually encountered in most industry, it was declared, there is no apparent reason why it cannot be as equally well managed. Radiologists have used X-rays since approximately 1893, but not without injury to themselves because the danger to which they were being subjected was not fully recognized.

"Ghost-Like Danger"

Man does not possess a special sense which will notify him of radiation hazard as will his sense of touch indicate to him whether an object is hot or cold. Because of this sensatory lack, he must rely upon other means, such as radiation-detecting instruments, to warn him of the presence of this "ghost-like" danger.

"Radioisotopes can be handled without undue danger to the user provided the precautions necessary are understood and employed," said Messrs. Menov and Lintz. "Neglect of these requirements can, under certain circumstances, lead to serious, although usually non-permanent type of injury. Because the levels of activity employed in the average laboratory or plant are in the microcurie or millicurie range, relatively simple precautions will suffice.

"The enviable safety record which has been achieved in Commission installations is all the more impressive when it is compared to other industries using potentially destructive forces. One could not expect to number on the fingers of one hand the people who have been accidentally killed by dynamite explosions or by failure of boilers, or by electrocution, or who have been injured in mine accidents.

"It has been repeatedly shown in the Commission installations that the degree of security afforded by proper safety control can be made such that 98% of the workers receive less than one-fifth of the permissible weekly dose and that the other 2% of the workers seldom exceed the permissible dose in any one week. It is commendatory to the safety with which atomic energy has developed when it is realized that no permanent radiation injuries or deaths have occurred in the Commission installations."

AEC Assistance

The Atomic Energy Commission has long realized the need for assisting others in their initial use of radioisotopes, the authors said, and has established under the Isotopes Division an Advisory Field Service Branch staffed with qualified personnel. Assistance is offered by means of publications and by field visits to existing or proposed installations in the design of laboratories, the safe handling of radioisotopes, the disposal of unwanted material, the standardization of measurements and health physics monitoring and supervision.

"Radioisotopes can be handled just as safely as are electricity, dangerous chemicals and explosives if the necessary, although different, precautions are taken," they said. "Present laboratory and industrial uses of radioisotopes involve amounts of active materials which are many powers of ten less than those employed within the Atomic Energy Commission installations. It may be said at once that most of the precautionary measures employed in the safe handling of radioisotopes in the two cases are alike in principle except for the scale on which they are used. Most laboratory applications will involve working with active materials in the microcurie and millicurie level.

"In the case of the former, the

MFCO 1-inch Adhesive Compress
brings you all these features

★ LONGER . . . the longest made . . . 3½" . . . fits around and overlaps big knuckles. Won't peel up on ends when hands get wet or sweaty!

NON-RAVEL PAD . . . no loose threads in wound area . . . looks neat, stays neat!

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And it's a *large* six-layer gauze pad, a full ⅞" x 1⅝" . . . all gauze, no cotton filler! Get this complete protection . . . ask for No. 100A. Write for samples.

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ons to be followed are those
employed in any well-
chemical, physical, or
al engineering laboratory,
addition of special tech-
insure protection against
created by radiation and
age contamination within
ratory by active isotopes.
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equire, in addition, some
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is handled, utilizing the
hielding between the source
user, using the minimum
of radio material required
problem under investiga-
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Much Radiation Can the Body Stand?

nas been subject since birth
bardment by cosmic rays
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be considered "safe," in
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X-radiation damage was
d in 1896, an attempt has
de to establish the "maxi-
ermissible dose." It is
that a given quantity of

Is Your Plant One of *the 16,000 Communities Protected by Modern Resuscitators?*

"Every major fire department in the country uses resuscitators except one", says the SATURDAY EVENING POST on page 59 of the June 24, 1950 issue.

Daily throughout the country these automatic positive-and-negative breathing machines are bringing victims "back from the brink" . . .

Auto accidents	Gas poisoning (coal, illuminating, industrial, monoxide)
Smoke suffocation	Asphyxia of new born babies
Heart attacks	Hospital emergencies
Electric shock	

SIMPLE . . .

SAFE . . .

EFFECTIVE

J. H. EMERSON CO.

22 Cottage Park Avenue, Cambridge 40, Mass.

radiation delivered to the whole body is much more dangerous than the same quantity delivered to a small area.

Recently several subcommittees of the National Committee on Radiation Protection have recommended that the maximum level of permissible external radiation be limited to 0.3 rep (radiation dosage units) per week of beta and/or gamma radiation; 1.0 rep per week if only the hands are exposed; 25 rep per single exposure to a man 21 years of age or over, provided he receives no further exposure before the age of 45; 50 rep per single exposure to a man 45 years of age or over, provided he receives no further exposure during his lifetime, and 0.03 rep of fast neutrons per week.

For the sake of comparison it was stated that an X-ray of the chest involves an exposure of approximately 1 r (where r is that quantity of X- or gamma-radiation that is the equivalent of 1 rep), a prolonged series of exposures of the intestinal tract may involve 15 to 20 r, and a series of X-ray treatments to a surface cancer may correspond to several thousand r.

The present permissible limit of 0.3 r/week represents a value which is considered to be well below that necessary to cause any temporary or permanent changes in humans, it was stated. Experimental evidence indicates that mutations caused by radiation are usually recessive in character and, providing the intensity is maintained below the permissible level, there is no need for undue concern regarding such effects.

Experiments on animals have shown that a continuous dose of 0.3 r per week over the entire body of a person received from the age of 21 to the age of 70, would probably shorten the life span by about three months. "The chances of premature death because of radiation hazard, provided adequate safety precautions are employed, are, therefore, very small compared to the possible effects at the age of

70 of hardening of the arteries, cancer, heart disease, traffic accidents or falls, or overindulgence," it was stated.

Radiation Detectors

The authors said non-hazardous employment of radioisotopes can be achieved through the use of proper detecting instruments, adequate laboratory equipment and good commonsense techniques.

Among instrument for radiation detection mentioned were the "cutie pie," a boxlike instrument which may have an extended chamber for reading over barriers, through holes or around corners without unduly exposing the reader; the Geiger-Mueller counter, the Zeus meter, Lauritsen electroscope and L & W electroscope.

For the same purpose workers may wear wrist, necktie or finger film badges or pen-type pocket meters. The finger film badge, as developed by the Oak Ridge National Laboratory, consists of a radiation-sensitive film enclosed in an expendable plastic ring which is adjustable to any size finger. The ring and film are used only once and the film is developed to determine the dosage received. From the reading the worker can judge if he must change his working distance or the amount of radioactive materials handled.

"Analyses of the film badges at the Oak Ridge National Laboratory where, in some cases, hundreds of thousands of millicuries of radioactivity are processed, show that protective measures are so complete that on the average 98 percent of the workers receive only one-fifth of the permissible dosage per week," they said.

Working Safely

Knowing by instrument how far from a given radiation material he must operate for safety, a worker will keep his distance, they said, adding that if the distance required is too great for proper handling, he may use remote-control handling equipment.

When radiation intensity is high he may be able to work with his material for only minutes or seconds. Knowing the radiation intensity from all parts of a container helps in determination of the time. The radiation from the side of a Pyrex beaker, for instance, may be comparatively harmless, while the intensity above the open top of the container may be 50 times as great and seriously dangerous to a hand placed there.

The amount of radioactive material used can be controlled and thus make for safe handling. If the amount presents a radiation hazard, proper shielding can be employed, based on a calculation of the amount of energy in the particles and the degree of absorption of certain materials. These materials might be a lead wall or floor, a transparent gloved plastic box, or plastic shielding for beakers, flasks, cylinders and test tubes. It may be a lead or concrete wall behind which remote-controlled apparatus carries out an operation which is watched through a periscope or arrangement of mirrors.

"There is at present little expectation that multicurie sources of radioisotopes will be used outside of the Commission facilities," it was stated. "When the status of the development of power piles necessitates the use of large quantities of activity, it will be the task of mechanical electrical, and other engineers to design suitable remote control devices."

Safety Precautions at Oak Ridge Laboratory

At the Oak Ridge National Laboratory all areas in which radioisotopes are stored or used are surveyed periodically, it was reported. At the end of the work day or before leaving the laboratory, each person working with active materials carefully checks his body and clothing for contamination.

Working areas and floors where radioactive materials may have been spilled are also inspected, using the appropriate instrument. Shoes are usually furnished to personnel employed in laboratories using medium and high levels of activity. The toes and backs are painted, for example, bright yellow, to remind workers to change shoes before leaving the laboratory, thus preventing the spread of contamination to the home.

A thorough survey once a week was suggested as a good standard for all laboratories using radioisotopes.

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Information on Products Advertised in this Issue Can Be Obtained By Marking the Check List. See page 76.

Injuries Rise in First Quarter of 1951

WORK injuries in manfacturing increased both in actual number and in relation to man-hours worked during the first quarter of 1951, according to preliminary reports received by the U. S. Department of Labor's Bureau of Labor Statistics.

The average injury-frequency rate for all manufacturing establishments reporting for the first quarter of 1951 was about 4 percent higher than that for the fourth quarter of 1950 and was 16 percent above the rate for the first quarter of 1950. The average for January 1951 was 21 percent above January 1950; February 1951 was 16 percent, and March 13 percent above the corresponding months of 1950. The short term trend within the quarter, therefore, was downward, following the usual seasonal pattern, but at a considerably higher level than prevailed in 1950.

An estimated 110,000 employees in manufacturing suffered disabling work injuries during the first quarter of 1951. This is an increase of about 5 percent over the estimate for the preceding quarter and 42 percent over that for the first quarter of 1950. The estimated volume of work injuries has now shown an increase in each of the last five quarters. Greater employment and longer hours of work have contributed to these increases in the number of injuries, but higher injury rates have been the principal factor. Over 400 workers died as a result of injuries during the first quarter of 1951, and 5600 others were known to have suffered some permanent body impairment.

Over 2,200,000 man-days were lost during the quarter by these injured workers. The value of wage losses alone amounted to approximately $22 million. This estimate, however, makes no allowance for continuing economic losses arising from the many deaths and permanent impairments, or for hospital, medical, and other costs incidental to the treatment of these injuries.

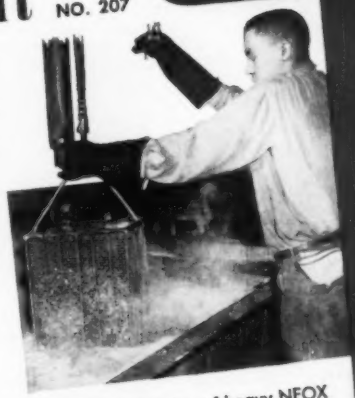
78% REDUCTION IN HA[illegible]

plus 6c per man-hour saved

Edmont CASE NO. 207

PROBLEM: Company employing over 1000 men, to shear, form and dip-coat sheet steel products, found production penalized by frequent hand injuries from cuts, heat and acid burns, and resulting infections.

Canvas and neoprene gloves quickly cut or tore, costing, on many operations, more than 10c per man-hour for replacement.



SOLUTION: On-the-job tests resulting in adoption of heavy NEOX (reinforced neoprene) coated gloves for work with hot galvanized metal and acid solutions, and gloves with tough natural rubber coated palms and thumbs for handling dry sheets. A 78% reduction in hand injuries followed the change-over. The safer gloves also wore 3 to 5 times longer, at average cost saving of 6c per man-hour.

Case records of hundreds of operations prove that correct glove selection reduces lost-time accidents, improves worker attitude and productivity, usually saves 40% to 70% of glove costs. On-the-job tests arranged on request.

Edmont Manufacturing Co.
1256 Walnut Street, Coshocton, Ohio

World's largest maker of coated fabric work gloves

Industrial Truck Assoc.

AT A special meeting of the membership of The Electric Industrial Truck Association, it was voted to open the Association's membership to manufacturers of gas-powered industrial trucks and tractors. It also was voted to change the name of the organization to The Industrial Truck Association. The changes became effective as of March 12, 1951. The Association will continue to maintain its headquarters offices at 3701 N. Broad Street, Philadelphia, Pa.

The Electric Industrial Truck Association has long been recognized as the authoritative source of information on the use of mechanized industrial trucks by industry.

industrial Hygiene

ASSOCIATE EDITOR
JACOB A. GOLDBERG, A.M., Ph.D.

Public Health Meeting

THE 79th Annual Meeting of the American Public Health Association, the 18th Annual Meeting of its Western Branch and the annual meetings of 38 related organizations will be held simultaneously in San Francisco, October 29 to November 2. The combined meetings, which will bring together 5,000 health specialists from all parts of the Western Hemisphere, were announced by Dr. Reginald M. Atwater, Executive Secretary of the Association.

The protection and promotion of the nation's health is the obligation of professional public health workers, Dr. Atwater said, and they are keenly aware of their increased responsibility in the current emergency. In San Francisco, he said, they will hear more than 400 authorities discuss modern public health practice in all its aspects and its vital relationship to national security and civilian defense. Headquarters for the meeting will be the civic auditorium.

Acoustical Materials Research

AN EXTENSIVE research program to determine the uses, proper testing and properties of acoustical materials has been announced by Wallace Waterfall, Executive Secretary of the Acoustical Materials Association. According to Mr. Waterfall, research projects are now under way at three different research centers in the country and these projects now constitute about 30 per cent of the Association's current activities.

At the present time a three year research program is being sponsored at the Armour Research Foundation, Chicago, to determine more accurate means of measuring the sound absorbtivity of acoustical materials, Mr. Waterfall stated. Arrangements also have been completed with Armour Research Foundation to set up test equipment for obtaining fire resistance and light reflection data on all products produced by members of the Association.

A Fellowship has been maintained for several years at the Acoustics Laboratory of Massachusetts Institute of Technology by AMA. From this work have come a number of important contributions to the technical literature on acoustics and still further data on the design and testing of acoustical materials is in immediate prospect.

At Factory Mutual Laboratories in Boston, safety tests are in progress which are intended to furnish data needed to help determine the relationship between safety and flame spread or combustibility of several interior finish materials.

The primary purpose of the Association, according to Wallace Waterfall, is to establish procedure whereby architects and others may be supplied with reliable data on the acoustical efficiency and other physical properties of architectural acoustical materials.

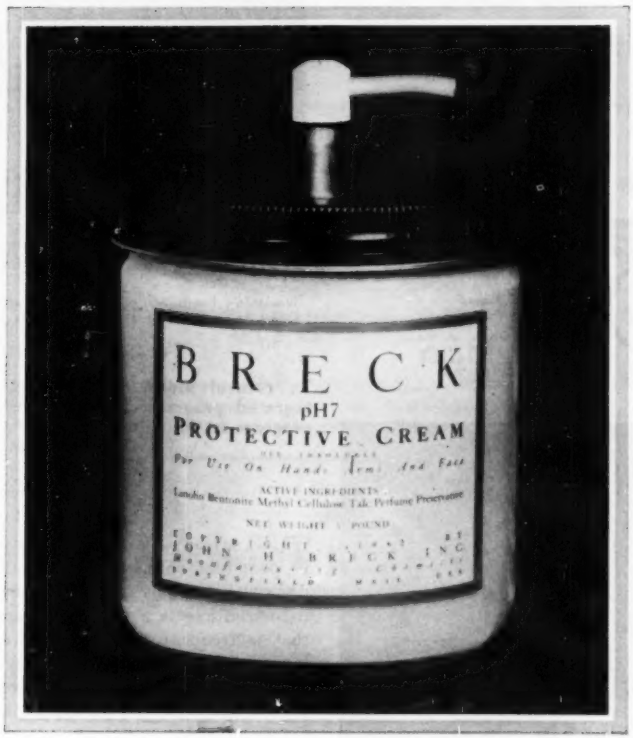
The membership of the Association is comprised of leading manufacturers of acoustical materials in the United States who manufacture products of drilled or fissured tile made from mineral or vegetable fibres or granules, perforated metal, drilled cement asbestos sheets.

Gulf Coast Health Conference

SEPTEMBER 27 through 29 are the dates set for the Fourth Annual Gulf Coast Regional Conference on Industrial Health. Sessions will be in the Rice Hotel in Houston. Conference Chairman Dave M. Wood said speakers were being contacted to discuss labor management and industrial health, industrial hygiene and the part industrial health will play in the overall civilian defense organization. Mr. Wood is chairman of a special Houston Chamber of Commerce committee, one of the conference's principal sponsors.

Sessions on industrial health and on industrial wastes and stream pollution will be held concurrently on September 28, with the September 29 sessions devoted to industrial nursing subjects.

B R E C K



BRECK pH7 PROTECTIVE CREAM

Breck pH7 Protective Cream helps prevent industrial dermatitis. It forms a protective film that prevents irritants such as lubricating oils, greases, cutting compounds, aromatic and hydrocarbon solvents, iron dust, rubber dust and paint from becoming embedded in the skin. After work, Breck pH7 Protective Cream is easily removed with Breck Hand Cleaner or mild soap and water, making harsh or gritty cleansers unnecessary. A handy dispenser top makes application easy.

A Breck Industrial Preparations Booklet will be forwarded to you upon request.

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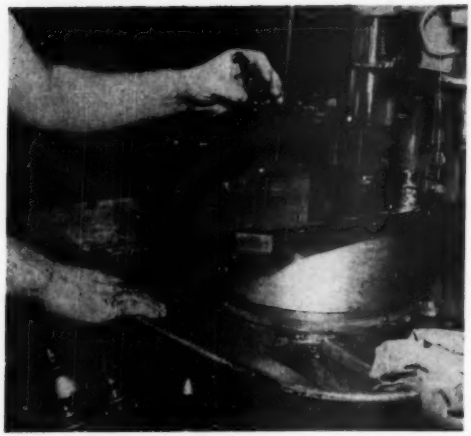
Protective Hand Creams

FEATURE

This is the second of a series of three feature articles on Skin Protection. The third article of the series will appear in the September issue of SAFETY MAINTENANCE & PRODUCTION.

In an automobile hood sanding operation, employee applies a water-repellent type of protective cream before starting work.

Protective cream prevents dermatitis in wet sanding operation.



Workman's hands are protected with an oil-repellent type of cream from defatting action of kerosene in honing operation.

To control industrial dermatitis requires an integrated program. One important phase of that program is the use of protective creams.

THE saying—"An ounce of prevention is worth a pound of cure"—both literally and figuratively deseribes the part that protective creams play in industrial hygiene. Industrial dermatitis is a disease that is frequently difficult and costly to eure, but taken in time a small expenditure for prevention will cut down its incidence to a small fraction of its normal rate. Proper washroom facilities, protective clothing, worker cleanliness are all a part of a well-rounded program.

Viewed from the perspective of protective creams, it is well to know that industrial dermatitis consists of four principal varieties: 1st, that caused by light, heat or other radiation (X-ray, sunburn, etc.); 2nd, that caused by mechanical irritation (friction, pressure or injury); 3rd, that caused by biological agents (fungi, bacteria, etc.) this type is incident to the others and may cause complications by invading the skin weakened by dermatitis from causes 1, 2 or 4; 4th that caused by chemicals. This last type has many ramifications . . . acids hydrolyze the skin's protein . . . strong acids dehydrate the skin and sometimes even remove the fat from the skin. Alkalies also hydrolyze the protein and dissolve keratin, one of the skin's structural substances. Oils and solvents dissolve the skin's natural fats and oils, leaving it dry and subject to cracking. Water and water solutions also remove the natural fats and oils, disturb the water content of the skin, leaving it easy prey to abrasion and secondary invasion by fungi and bacteria. Heavy

ENDURING EFFICIENCY?

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Many and varied are the jobs to which employees' hands are put in industry today. And many and varied are the styles of gloves available.

To be sure you have the right glove for the right job, and one that will be more efficient longer, write today for the new Hood Industrial Work Glove catalog. Here you will see dramatically proven that actual "on the job" testing of every type of Hood glove is your assurance of this all-important extra wear, efficiency, comfort and protection.

And from this catalog you will see which of the wide choice of Rubber coated or Neoprene coated or Plastic coated gloves is best for your particular need.

"Put your employee's hands into a safer glove"

Write for this catalog today for the *right, longer-lasting* glove for each job!

HOOD for NEW Safety PLUS

HOOD RUBBER CO. Watertown, Mass.

metal compounds act upon the protein of the skin. Materials such as dyes and animal and vegetable oils produce allergies.

The problem, therefore, is to produce creams and ointments that will insulate the skin from these various materials, preventing the hydrolyzing of the protein, carrying off of the fats and oils and the allergic reactions. Besides being impermeable and non-irritant, these protective creams must be easy to apply and remove, but not easily removed by the normal process of the work-day. Its protective film must not be greasy or sticky. Of course it is impractical to compound one cream that would be impenetrable to all of these primary irritants, for one that would be impervious to oils, probably would be very ineffective against water compounds, and vice versa. While it might seem to be a very complicated proposition to get the right cream for each of these different industrial irritants, it is not necessary to get a special cream for each one of them. Most substances that cause skin irrritation fall into two, or at most three, groups.

Protection from Oils

One such group is composed of oils, solvents, thinners and other water-insoluble organic liquids. These are all alike in their immiscibility with water. A protective cream which is oil-repellent is recommended for use on jobs where oils are a hazard. It will contain materials which repel oil and cause the oil to form droplets and run off of the skin preventing the oils, solvents, etc. from dissolving the skin's oils. Materials suspended in the organic liquid exposure, which might cause irritation are deposited on the barrier layer film, do not contact the skin, and are easily removed at the end of the work period when the protective film on the skin is removed with soap and water.

Protection from Water

Another group is composed of water and aqueous solutions, water soluble oils and organic liquids soluble in water. In this case, a cream which is water-repellent is needed. Such a cream will contain agents which repel water and cause it to form droplets and run off the skin. Materials in the water which are irritants, will stay in the water and not contact the skin. Concentrated acids and alkalis in the water will generally attack the film and consequently protective creams, in themselves, may be inadequate protection. Under such circumstances, rubber gloves should be worn over the barrier film. The protective cream, in this case, serves to protect against any solution which may seep in through pin holes in the gloves or around the top of the gloves. Warm water containing soap or some other detergent is used at the end of

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Brady Safety Signs are made of durable cotton cloth, Silicone Coated to resist dirt, grime and moisture. CONFORM TO ASA Standard Z35.1-41. Select your requirements from a complete catalog of standard safety messages. Cost only a few cents per sign. Immediate delivery. Specials made to order.

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the work period to remove the film. Since it is removed in this manner, it obviously cannot be used to protect against hazards which involve warm soapy water. Here, a small amount of skin conditioner of either an absorption base cold-cream or lotion type should be applied at the end of the work period. This material will help replace the natural oils removed from the skin by the defatting action of the soapy water.

Protection from Dusts

A third group of irritants are dusts, frequently air borne. Control consists of a tough film which prevents contact between dust and the skin. These dusts become more dangerous when dissolved in water. This may occur through perspiration. Ingredients are added to these cream products to reduce perspiration. They perform a dual purpose: retarding the destruction of the barrier film and preventing the solution of the irritant.

Case Histories

A kerosene oil honing operation in a large automobile plant was causing considerable irritation and resulting dermatitis. A protective cream was prescribed and the problem virtually disappeared within a week.

A similar problem occurred in a large carburetor assembly plant where large quantities of kerosene are used. Before the use of a barrier layer cream in this plant, three to five new cases of dermatitis were reported each week from the irritant effect of the kerosene on the workers' hands and arms. Many employees were unable to work in oil at all. Three years ago, this plant was supplied with a cream which protected against solvents. Employing the same number of men, they now do not average one case of dermatitis a month.

As an example of a protective cream on a water exposure mention may be made of its use on an automobile hood sanding operation. In this wet sanding work, the automobile bodies are rubbed with sand paper, considerable amounts of water being used. The workers' hands are exposed to water, abrasive from sand paper and chemical action from some of the ingredients of the paint undercoat. This work, if not properly controlled, may cause considerable irritation, particularly in hot weather. In the automobile factory, before the use of a water-repellent cream was instituted, among 15 wet sanders, 8 showed considerable irritation of the wrists and forearms. After the use of the creams, among a much larger group, only one case of dermatitis was reported.

Pictures by courtesy of Boyer-Campbell Co.

WHAT'S NEW? See pages 72–74

Handling Ethylene Oxide Safely

IN CONNECTION with its program to provide essential information on safe use and handling of hazardous chemicals, the Maufacturing Chemists' Association, Inc., has published Chemical Safety Data Sheet SD-38 on Ethylene Oxide. Prepared by the Association's General Safety Committee, the manual is designed primarily for supervisory personnel and staff members but also stresses the importance of thorough education of employees in proper precautions.

Among the precautionary measures discussed are those designed to prevent fire and explosion resulting from the variable physical state of ethylene oxid Polymerization hazards occurring when the chem e is in contact with certain catalytic influene s are scribed, along with methods of guarding against th Also covered are the common dangers invol ed handling storage, waste disposal, and load.ng and loading of tankcars and drums.

Particular emphasis is laid on hazards which m gh occeur if adequate protection and safety precautio are not followed. Considerable space is devoted t proper choice of equipment for the persona prot tion of handlers, such as clothing, goggles, masks, et Specific data are presented on possible results of ex posure to excessive concentrations, and the proper first aid and medical treatment for exposure cases is described.

All data are cross-referenced and documented in relation to warning labels, national fire codes, and Bureau of Explosives, American Standards Association, and Interstate Commeree Commission regulations.

Chemical Safety Data Sheet SD-38, Ethylene Oxide (18 pages) may be purchased at 30 cents a copy from the Manufacturing Chemists' Association, Inc., 246 Woodward Building, Washington 5, D. C. Remittance should accompany order.

For Better Training in Industrial Medicine

CALLING for a more practical approach in the training of industrial physicians, Dr. Lorand V. Johnson, associate professor of ophthalmology at Western Reserve University, urged industrial associations and medical schools to set up training facilities in industrial medicine.

Writing in the Spring issue of The Sight-Saving Review, a publication of the National Society for the Prevention of Blindness, Dr. Johnson made these points:

1. "Few major industrial plants fail to make provisions for trade schooling or apprenticeship for their skilled employees. How many *(To page 75)*

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LET IT STOP

ONE of the most common causes of industrial accidents is failure to shut off or to wait for machinery to come to a full stop before trying to repair or clean it. A machine-shop trainee, in attempting to wipe oil off the punches and table of a machine while it was under power, had his hand pulled into the machine when the rag in that hand caught in the mechanism. He suffered severe lacerations, contusions and puncture wounds involving the thumb and the first, second and third fingers. The employee had previously been warned of the potential danger of the machine and was re-instructed as to the importance of shutting off moving machinery before cleaning or oiling.

HOSE STREAMS FAIL TO CHECK FIRE

DURING the erection of a new steel frame building, a riveter's assistant missed catching a red-hot rivet which fell into and ignited a pile of excelsior in the corner of an open-sided wooden shed. The fire spread to and destroyed three large sheds, which were used for storing machinery and drying gypsum blocks. There was no automatic sprinkler protection and hose streams were inadequate to check the fire. It is another illustration of the importance of using non-combustible construction or providing automatic sprinklers for secondary plant structures of this kind.

WHAT MAKES A FIRE?

FIRES, like any other accident, are the result of several contributing factors, especially big fires. A speaker at the NFPA annual meeting described the following conflagration in a three-story, masonry-walled, steel-framed plant that made furniture. During the night, fire started in kerosene-soaked sawdust on the first floor, reportedly because of the careless smoking of an employee. Flames spread so rapidly that hand extinguishers were not tried. The paint-saturated ceiling was ignited and the fire spread rapidly to the open stairway, elevator shaft and thus to the second floor where dip tanks and paint-soaked floors were quickly involved. The plant watchman had tried to call the fire department by telephone but the plant line was dead. He disregarded an alarm box near the plant and telephoned from a pool room. When firemen arrived, they could not enter the first floor to shut off a gas main which had broken and was feeding gas to the flames. The building could not be saved and the firemen directed their efforts to saving an adjoining hosiery mill. An 8-inch brick wall separating the two structures collapsed, but most of the hosiery mill was saved by sprinklers and hose streams.

If a fire protection engineer had made a survey of the furniture plant before the fire, he would have found the following conditions which contributed to the large loss of this fire: 1. the building was unsprinklered and the floor areas were not subdivided; 2. in spite of

HARD WAY

obvious hazards, employees were allowed to smoke while working; 3. the watchman did not know there was an alarm box outside the building; 4. kerosene-soaked sawdust was allowed to collect on the floor; 5. wire entering a spring coiling machine was lubricated by drawing the wire through a handful of kerosene-soaked waste and the sawdust was provided to collect the drippings; 6. the ceiling of the first story was saturated with drippings from the second story; 7. the stairway and elevator shaft were open; 8. on the second floor, several dip tanks were without covers, each containing 30 to 50 gallons of highly flammable enamel; 9. the second floor was saturated with enamel that had overflowed the tanks and dropped from springs as they were carried to gas-fired ovens; 10. the ovens had no outside curb shut-off—the only valve being on the first floor; 11. the 8-inch brick wall separating the plant from the one-story hosiery mill, while adequate for protection from a fire originating in the hosiery mill, was not sufficient for protecting the hosiery mill from the furniture plant. Each of these conditions was an isolated problem but the combined effects of these hazards permitted the fire to destroy the whole building.

CONVEYORS CAN CARRY HAZARDS TOO!

A WORKMAN in a chemical plant was watching loaded bags on a conveyor. He reached out to straighten a bag coming off the slat conveyor and his hand was caught between the idle roller and the slat conveyor. He suffered numerous brush burns and contusions of his hand, arm and shoulder. The engineering and the safety departments of the concern went into a huddle and have modified the slat conveyor roller to prevent similar accidents.

HORSEPLAY AGAIN

HORSEPLAY is the most insidious of accident causes because it is often the result not of personal carelessness but of the adolescent attitude of another employee. One company recently experienced two such needless accidents within a few days of each other. Two workers in adjoining showers were throwing cold water at each other. One of them stepped out of the shower to avoid the cold spray and fell, fracturing his arm. The other accident occurred when a worker was walking down a main aisle. He heard someone call, turned to look and was struck in the eye with something having so much impact that he was knocked to the floor. Another worker assisted him to the first-aid room, but who had thrown the object or what the object was was never determined.

THE INDUSTRIAL Nurse

EDITOR

ROSAMOND J. WEBSTER, R.N., A.M., Ph.D.

Medical Programs in Industry

A NEW publication of value to industrial nurses is entitled "Industrial Health and Medical Programs." It is U. S. Public Health Service Publication No. 15 (397 P.) and is obtainable from the Government Printing Office, Washington, D. C. (price $1.00). One section of this publication deals with the duties and responsibilities of the nurse in industry, and quotes largely from the publication of the same title by the American Association of Industrial Nurses. Those who are not members of this Association are particularly urged to read this material, which also includes information on qualifications, standing orders, and much additional practical and interesting data. There is a section on the older workers. It is pointed out that long-term factors affecting the demand for older workers include the decline in the proportion of skilled labor, and the smaller proportion of persons in the population employed in agriculture, and a decline in the number of self-employed. The substitution of machinery and the utilization of growing numbers of unskilled and semi-skilled workers in industry has lessened opportunities for the employment of the older worker, one of whose chief competitive advantages lay in the skill of craftsmanship which he acquired over the years. The increased concentration of industrial and commercial activity in large-scale establishments has reduced opportunity for self-employment of all workers. It has appreciably affected job opportunities for the older worker, who, though he may be relatively inefficient, could earn his own living in a family-owned small business unit. In that way he remained in the labor force longer than he could as a wage-earner subject to dismissal. The proportion of workers in the civilian labor force in agriculture has declined from 21 percent in 1929 to 13 percent in 1948. The proportion of persons in the age groups 45 to 64 and over 65 in the labor force increased rapidly during World War II. The number of men over 65 years of age in the labor force increased from 1.9 million in 1940 to 2.4 million in 1944. We are most likely to face the same situation for some time, thus raising various industrial health and industrial nursing problems.

Weight Control

OBESITY has been defined as an excess of fat over the normal expected for the height, age and sex of an individual. In all but a very small percentage of overweight people, the condition is brought about through a combination of over-eating and inactivity. Many studies have indicated that the mortality rates among obese people are higher than among those of normal weight. Overweight tends to shorten life. Insurance statistics show that among men in whom diabetes began after the age of 35, more than 80 percent were overweight before the onset of the disease. These data also show that the death rate from diabetes among men 25 percent or more overweight is eight times as high as among average weight persons. The results thus far from attempts to manage overweight patients by medication and dietary advice alone have been reported by many physicians as being very poor. Psychological aspects seemingly play an important part in obesity. Many lack the motivation to lose excess weight. The claim is frequently made that overweight people are often unhappy. Some hold that obesity may often be regarded as the physical expression of a neurosis, and that with few exceptions, there is little basis for the theory of obesity being associated with endocrine disturbances. Despite much propaganda, the prevalence of obesity in this country is still high. There may have been some improvement among limited groups, but the total picture is not satisfactory from the point of view of the nation's health. This is particularly so because obesity is associated with an increased prevalence of and high death rate from the degenerative diseases. Attempts to control obesity on a long-term basis through a nutritional approach have not been particularly successful. Since the possibility remains that in many overweight individuals there is an associated psychological problem, psychotherapy may be essential. As a matter

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of fact, this has been tried successfully in a number of cases. The industrial nurse has a direct concern with this problem from the point of view of work efficiency and health maintenance. As a health teacher and guide, her advice can be of considerable service.

Interpersonal Relationships

THIS is a general term which applies to family life as well as to other human relationships. It has long been realized that the efficiency of a work gang can be seriously affected by the regard in which the foreman or other supervisor is held by the workers. Similar recognition has been involved in relationships between groups of workers. A scientific study by one of our largest industries, which has been a pioneer in such analysis, relates to the work records of a group of women in the assembly department. It was found that production varied very little provided the workers got along well with each other. Periods of rest, sleep regularity, humidity, temperature, and periodic illnesses did not affect the production record in sections where the interpersonal relationship between the workers were maintained on a satisfactory basis. These findings therefore tend to point up the essential character of adequate placement insofar as group composition is concerned. The man or woman placed with a group of workers with whom he can be friendly on and off the job has a better chance of adding to the efficiency record of a department than if either one or more of the group resented the new worker, or the latter felt unhappy in the new environment. The industrial nurse is often in a position to spot interpersonal difficulties. No matter how efficient a placement or personnel department may be, the real test comes on the job. There again, in times of labor shortage, the finer distinctions cannot always be adhered to. On the other hand, a judicious and non-prejudicial transfer of a worker from one group to another may serve to relieve tension and thus almost automatically increase production. This matter of interpersonal relationships is often the keystone to success in any business. The alert, informed, and cooperative industrial nurse can add her share to good human relationships. In that way she serves her employer well, and makes work a more pleasing activity for her fellow workers.

History Taking

MEDICAL students and internes are taught the importance of correct and detailed history taking. Nursing students receive similar training, although usually to a more limited degree. Still, in industrial

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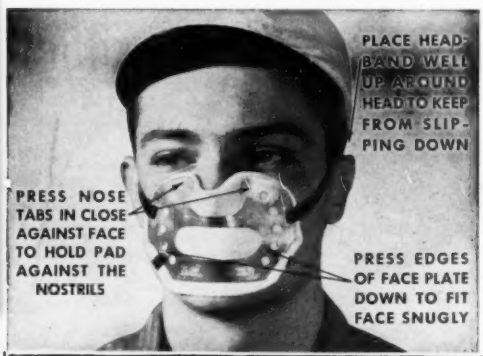
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medical departments, it usually falls to the lot of the sole industrial nurse to write up the history of an accidental injury or of an illness, which may or may not be connected with the particular occupation of a complaining worker. Getting a good history—one that is correct, adequately detailed and to the point —takes much experience and skill. Some physicians maintain that a good and complete history is often of greater help in the making of a diagnosis than the physical examination itself. A well nurtured woman who was obviously overweight was referred to a consultant by her physician. She was in her late forties and had lost considerable weight in the preceding two months. Without careful questioning, her family physician suspected malignancy as other members of her family had been found to have cancer. Fully frightened, she agreed to visit the consultant, who had been given the summarized history by the first physician. After a complete history was taken by the more experienced physician, followed by some examination, he asked the patient whether she could ascribe her loss of weight to any specific cause. There was no evidence of malignancy or other serious disease. "Well," said the patient, "I went to another doctor two months ago because I was overweight. He put me on a diet and that is how I lost so much weight." The moral of the story is self-evident. It has previously been pointed out in these pages that the industrial nurse faces situations which do not prevail in the office of a private physician. The ailing or injured worker who comes to a plant medical department brings with him not only his complaint or injury, but also a legal question. Was his job responsible for the ailment? Did he receive the injury in the regular course of his employment? These are important points in history taking.

The Eyes

VARIOUS injuries to the eyes may follow industrial exposure to toxic substances. These may cause a systemic poisoning with impairment of vision or loss of eyesight through affection of the retina, optic nerve, optic tract, or its radiations into the occipital lobe of the brain. Some of these toxic substances are alcohol, tobacco, naphthalin, atoxyl, arsenic, dinitrobenzol, and lead. Handlers of animal skins may acquire tularemia, which affects the conjunctiva and which in turn may involve the cornea with resultant extensive scarring. All of these and related conditions not only require early recognition, but skilled treatment, together with hospitalization and attentive after-care, if any degree of useful vision is to be saved. Constant vigilance is required to control active infections which may occur among employees. The pneumococcus, streptococcus, genococcus, and the virus of trachoma need to be watched for. Cleanliness in work places, clean *(To page 75)*

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As a convenience to executives, the new publications of manufacturers are offered by the Reader Service Department of SAFETY MAINTENANCE & PRODUCTION. The catalogs, data sheets and technical bulletins reviewed here present the latest information on protective and maintenance products and equipment. Use the Reader's Inquiry Coupon.

PERSONAL PROTECTION

Protective Equipment for Welders . . H-201
Willson Products, Inc. A 4-page illustrated circular on protective equipment for welders describes a wide range of eye protective devices for both gas and arc welding. Included is information on respiratory protection and accessories such as rubber mask padding for goggles and special lenses for welders wearing bifocal glasses. Various types of filter glass are described and a selector chart shows the type suitable for different welding operations.

Coated Work Gloves H-202
Hood Rubber Co. An unusually informative 12-page booklet shows the complete line of rubber, neoprene and plastic coated work gloves available in various cuff styles. The booklet is well illustrated and line drawings point out the details of workmanship. Of particular value is the performance chart which indicates the comparative wearing properties and chemical resistance of rubber, neoprene and plastic coated gloves.

Women's Work Caps H-203
Boyer-Campbell Co. The new "RAY-VE" hat for women in industry is described and illustrated in a 4-page folder, which emphasizes the safety, coolness, light weight and attractive appearance of the head covering.

Orlon Uniforms H-204
Mercantile Uniforms, Inc. Work uniforms such as coats, aprons, coveralls, pants and shirts, dresses, etc. are now available in the new Orlon acrylic fiber. The folder feature the fabric's resistance to chemical damage and its long wearing and easy cleaning characteristics. Included are excerpts from laboratory reports.

Women's Work Clothes H-205
Saffi-Garb Co. A 1-page circular describes and illustrates garments that have been designed for appearance, comfort and safety. Made of twill, the line includes slacks, jackets, shirts, overalls, coveralls and hats.

SKIN PROTECTION

Industrial Skin Preparations H-206
John H. Breck, Inc. This attractively arranged 16-page booklet shows how the Breck products can be used to prevent industrial dermatitis. It summarizes the causes of industrial skin disorders, and shows specifically how the preparations are each formulated to control dermatitis, including a liquid hand cleaner, oil-resistant and water-resistant protective creams and work cream. The booklet also describes the Breck service and outlines a routine for workers to follow to prevent dermatitis.

Athlete's Foot Preventive H-207
Onox, Inc. A 4-page illustrated folder gives full information on the skin-toughening method of athlete's foot prevention by means of a footmat and a special solution. The bulletin answers many questions about the product, lists industries where it is being used, and describes the free foot-health service plan.

FIRST AID & MEDICAL

Sweat Bands H-208
American Allsafe Co., Inc. A "Safety Maintenance & Production" reprint colorfully presents the DRYBROW sweat band which, during hot weather or on hot jobs, keeps sweat out of the eyes and has a cooling effect. Folder explains how free sample can be obtained.

First Aid Kits & Refills H-209
Medical Supply Co. This 4-page folder is a valuable reference bulletin on standard first aid kits and supply items. With the various units illustrated, concise charts show exactly what the different sizes and types of kits contain and what refill units are available. In addition to the general purpose kits, there are the more specialized types, such as pocket packets, fire department kits, burn spray kits, and products for eye injuries, poison ivy, and snake-bite.

Impregnated Salt Tablets H-210
U. S. Safety Service Co. A 2-page bulletin describes the impregnated salt tablets for people whose jobs cause excessive sweating. The bulletin shows how each salt crystal is individually coated to permit slow dissolving and therefore prevent nausea or stomach distress. Also illustrated are the expendable dispenser and the steel case for outdoor locations.

Life Saving H-211
J. H. Emerson Co. "You Have 4 Minutes" is the title of this folder reprint of an article from this publication. The article describes a new as well as the older manual methods of resuscitation and stresses the importance of using automatic mechanical equipment as soon as possible. It is a valuable reference for rescue squads, doctors, utility workers, civil defense teams, etc.

FIRE PROTECTION

Fire Extinguisher Guide H-212
Stop-Fire, Inc. This pocket size folder describes this company's complete line of portable and special purpose extinguishers. A handy chart serves as a guide for selecting the right extinguisher for each type of fire hazard in industry, institutions and in transportation.

Fire and Panic Exit Devices H-213
Vonnegut Hardware Co. This attractively prepared 4-page folder points out that all employees are your dependents and that in a time of emergency they are dependent on a safe, rapid means of exit from buildings. The bulletin describes and illustrates the Von Duprin panic bar hardware for doors.

Vehicle Safety Tanks H-214
American Safety Tank Co. A well-illustrated 4-page folder shows the many safety features of these U.L.-approved gasoline tanks for trucks. The folder emphasizes their crash-resistance, their spill-proof features when upset, and non-explosive design in case of fire.

SIGNS & WARNINGS

Signs for Utilities & Industry H-215
Eastern Metal of Elmira, Inc. This 6-page folder features the "A" stand caution sign to warn motorists approaching a work area. The free-swinging design prevents its being blown over by the wind, and the unit includes red flags. The folder also describes and illustrates the company's line of baked enamel metal signs (Danger, Caution, Safety, Directional, etc.) designed according to A.S.A. standards.

SAFETY INCENTIVES

Safety Award Campaigns H-216
Award Incentives. This unusually informative 16-page booklet is a practical guide on how to set up various types of safety award campaigns. Three different plans are outlined, including step-by-step details. Also shown are typical pins and award-gifts which can be used for no-lost-time-accidents, safe driving, etc.

FLOORING & MAINTENANCE

Floor Maintenance Service H-217
Masury-Young Co. A nationwide floor maintenance service is described in a well illustrated 8-page bulletin. The service includes: survey of the floor problems, recommendations, instruction and inspection. In addition to this consultation service, the bulletin gives suggestions for the best treatment for old and new floors of asphalt or ceramic tile, concrete, cork, linoleum, magnesite, rubber tile, terrazzo and wood.

Non-Slip Abrasive Coating H-218
A. C. Horn Co., Inc. An abrasive-filled plastic coating for positive protection against slipping hazards is described in an informative 4-page bulletin. Used on wood, concrete or metal floor ing, it provides a non-skid surface whether wet, dry or oily. Drawings show typical uses for the brush-applied coating on stairs, ramps, catwalks and machinery platforms.

Floor Resurfacing H-219
Stonhard Co. "Over the Rough Spots" is a new pocket-size, 32-page booklet that gives a searching analysis of floor repair problems. Graphically illustrated, it tells where to look for and how to correct bad floor conditions and how comparatively unskilled workmen can repair and resurface concrete and wood floors.

Anti-Slip Finish H-220
R. M. Hollingshead Corp. A high-lustre floor finish containing no wax is described in a 1-page bulletin. Its anti-slip features are certified by U.L. The product is suitable for floors of rubber and asphalt tile, terrazzo, linoleum and wood.

DUST & FUME CONTROL

Vacuum Equipment H-221
Spencer-Turbine Co. This fully illustrated bulletin shows how versatile industrial vacuum equipment can do the "impossible in a jiffy." In addition to its conventional uses for floor and building maintenance, the equipment is shown in such diverse applications as ash removal, conveying, insecticide spraying, handling chemicals, fume removal, bench cleaning, etc.

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What's New...

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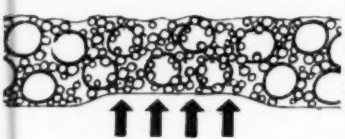
NON-SLIP WAX INGREDIENT

HARDER, yet safer waxes—an old problem of the maintenance and safety engineers—are now available from more than 50 industrial wax manufacturers as the result of a new chemical development by the Du Pont Company called "Ludox" colloidal silica.

"Ludox" has such a small particle size that more than 60 trillion particles are present in the small area of wax film under a woman's spike heel. Enough "Ludox" is blended in so that each wax particle is surrounded completely with colloidal silica, to make the wax film harder than before. When pressure is applied to the wax surface, as from a person's foot, the "Ludox" particles are pushed down into the particles of wax,



as shown in the drawing. The result is a type of skid-resistance which gives new safety to walking.

Waxes properly formulated with "Ludox" are equal to regular floor waxes in gloss, water-resistance, freeze-resistance and leveling, according to Du Pont's research department which has cooperated with many wax manufacturers in adapting different wax formulations to produce optimum results with "Ludox". Even in the concentrated form in which "Ludox" is supplied to the wax manufacturers, the product is clear and virtually transparent to the eye. This clarity gives added transparency and deeper luster to the wax film on the floor.

Wax formulations containing "Ludox" are available from many wax manufacturers for general purpose use, and also for specialized safety requirements. These products have been tested and adopted in schools, hospitals, office buildings, stores and other businesses all over the country, where safer walking surfaces are needed to reduce slipping and falling accidents without sacrificing the beauty and protection of a waxed floor. For details, send in the coupon.

GAS-TIGHT GOGGLE

A NEW rubber frame goggle, designed to provide a gas-tight seal and recommended specifically for gas, fume and smoke hazards, is announced by American Optical Company, Southbridge, Mass. The new 701 goggle is constructed without any ventilation slots in the rubber frame to prevent infiltration of air. When the goggle is perfectly fitted, a gas-tight seal results. Headband of the goggle enters slots in the outer goggle frame and not through a slit in the lens. Also, screw-headed bolts on the front of the goggle are made of non-corroding stainless steel.

The new AO 701 goggle may be obtained in combination with American Optical's R2000 or R5000 respirators. These combinations can be supplied permanently riveted together or as separate units. For details, send in the coupon.

ROUGH-PALM PLASTIC GLOVES

AN ANSWER to the long-awaited need for a completely foolproof plastic work glove for industry, The Milburn Company, of Michigan, has developed a new "Rough-Palm" Surface plastic glove. It represents the latest addition to their PLYGLOV line. After conclusive laboratory and on-the-job tests, the "Rough-Palm" not only reduces slipping where even the most oily sheets are handled, but it also out-wears normal plastic coated, leather and neoprene gloves, in the handling of sharp-edged materials.

While Milburn's "Rough-Palm" is an extremely heavy duty glove, it still has the characteristic lightness of all plastic-coated materials. In addition, they are free of the usual skin irritating properties, for, like others in the PLYGLOV line, they are actually vinyl plastisol dispersions. Thus, the industrial worker can wear these gloves through a full working day without fear of developing any skin rupture or dermatitis.

The "Rough-Palm" is available at the present time in the knit wrist style only. Promised shortly are such other styles, as the gauntlet and safety cuff. Samples and full details may be obtained by sending in the coupon.

FLOOR ENGINEERING SERVICE

BECAUSE the installation of industrial floors for maximum life and minimum cost is a highly specialized task that requires expert planning and skilled technical execution, the Flash-Stone Company, of Pennsylvania, has established an integrated floor service to American industry. The varied factors affecting floor life are evaluated; the proper flooring material is specified; and, with the aid of experienced crews, new or resurfaced floors are installed in minimum time.

Savings from engineered floors are realized through lowered costs, assured maximum life, speeding the movement of material handling, reducing downtime required for installation, eliminating the dust and dirt frequently connected with resurfacing and by the construction of floors having adequate transverse and compression strength so that floor maintenance is eliminated.

The Flash-Stone Service accepts complete responsibility for engineering, materials and installation. The initial survey is made without obligation. For complete information, send in the coupon.

E GLASS COATING

T life and property against
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SELF-RESCUER

encies in air contaminated
monoxide, the Mine Safety
mpany, has developed a new
," a small, compact, light-
to protect the wearer for 30
) concentrations found after
sions in mines or other un-
enclosed areas. The ap-
een tested and approved by
eau of Mines for self rescue
nonoxide contaminated air.

Self-Rescuer is simple to use
enough to be carried person-
ies of them can be stored in
assemblies" at strategic lo-
ghout a mine, or single units
d in a leather case. The unit
its flexible rubber body, a
sealed chemical cartridge
cost and replaceable after
tridge is filled with a drying
Hopcalite," which oxidizes
rbon monoxide to harmless
le.

e wearer merely lifts a seal-
e back of the unit to pry the
ing a plunger. He depresses
nd inserts the flexible rubber
n his mouth. A nose clip is
prohibit nasal breathing. An
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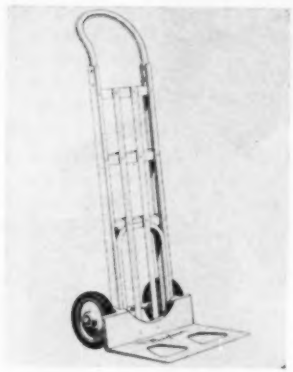
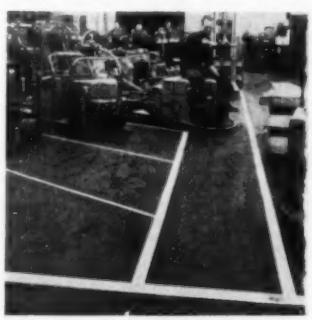


LIGHT HAND TRUCK

MAGLINE, INC. announces the addition of a new model to their line of magnesium hand trucks. The company is a pioneer in the field of light-weight magnesium handling equipment.

This new, light-weight model, weighing only nineteen pounds, incorporates a redesigned nose unit, extending beyond the wheel on either side. This development eliminates the possibility of flexible loads binding on the tires. The new design also features the addition of two magnesium strips, placed along the frame member. This feature gives the truck a greater degree of usefulness, as both large and small package units may now be handled with equal facility, by the same piece of equipment. For further information, send in the coupon.



LANE-MARKING TAPE

A NEW method for marking trucking lane and safety area stripes on the floors of industrial plants and warehouses, is announced by Minnesota Mining and Manufacturing Co. Tests show that the new method—using "Scotch" brand plastic film tape No. 471—will outwear other sprayable or brushable striping materials five times longer, the producer claims. The tape can be applied by a firm's own maintenance men, without loss of employee or trucking time in the taped-off areas.

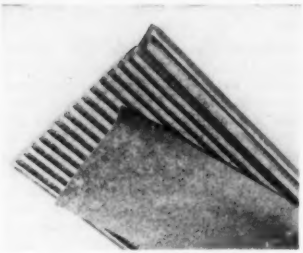
Other advantages for the new method are: 1. Resistance of the tape to acids, alkalies, water, salt water, alcohol, and hydro-carbons such as gasoline and kerosene; 2. Reduced costs due to speed and simplicity of application; 3. Ability to alter marked-off areas without leaving traces of the former stripe; 4. Extreme ease with which damaged areas can be repaired or replaced; 5. Lack of floor ridge, due to tape's thinness (4 mils); 6. Tape's pressure-sensitive adhesive grips immediately upon contact; 7. Seven colors to help identify specific floor areas such as red for danger areas, canary yellow for safety zones, etc. Other colors include white, orange, blue, green, brown and black.

The tape is available nationally from paper, mill supply and hardware jobbers, in 2-, 3-, and 4-inch widths on 36 yard rolls. For details, send in the coupon.

LIGHTWEIGHT DUST HOOD

A NEW type lightweight dust hood is announced by Willson Products, Inc., manufacturers of personal safety equipment. The hood will be useful to anyone working in atmospheres containing heavy concentrations of irritating dust. A unique design makes possible the use of one hood either with or without a respirator, by means of easily interchangeable frames and windows.

The hood itself is of lightweight cotton duck, and a close but comfortable fit is obtained by adjustable neck and underarm web straps. Extra-large windows made of .040" non-flammable acetate sheeting provide ample vision for extra safety. They can be replaced without removing the frame. Frames are semi-rigid fibre, and can be easily removed by means of snap fasteners for cleaning when necessary. With the respirator window and frame assembly, the hood will accommodate respirators which provide a high degree of protection against dusts and low concentrations of common industrial gases and vapors. For details, send in the coupon.



NON-SLIP STAIR TREADS

TWO new types of heavy duty stair treads, that promise to fill a long-felt need with commercial buildings, institutions and in industry, have just been developed by American Mat Corporation of Ohio. Both of these treads assure long wear under heaviest traffic. Produced from especially tough cord and rubber compounds, they cushion every step and provide an excellent non-slip surface.

These new treads are also unusual in that they are available not only in black, but also in red, green, blue and mosaic at no extra cost. One type is of heavy molded rib construction and the second type is of smooth surface. Molding on both types is provided by a 2-inch lip which can be increased if desired.

Both types are easily installed by means of adhesive or tacking and may be curved over large nosings, common with marble stairs, and can be abutted to each other to cover any given area. For details, check the coupon.

August, 1951

To Safety Maintenance & Production

75 Fulton St., New York 38, N. Y.

For prices and complete details of items mentioned in this month's "What's New in Safety Products," check items that interest you and mail coupon.

- ☐ Non-Slip Wax Ingredient
- ☐ Gas-Tight Goggle
- ☐ Rough-Palm Plastic Gloves
- ☐ Floor Engineering Service
- ☐ Protective Glass Coating
- ☐ CO Self-Rescuer
- ☐ Light Hand Truck
- ☐ Lane-Marking Tape
- ☐ Lightweight Dust Hood
- ☐ Non-Slip Stair Treads
- ☐ Civilian Defense Light
- ☐ Portable Radiation Meter
- ☐ New Filter Mask

Firm Name .....

Attention of .....

Position .....

Firm Address .....

City .....

CIVILIAN DEFENSE LIGHT

A NEW portable light for Civilian Defense emergencies which provides 80 hours of continuous light on each battery charge has been announced by Carpenter Manufacturing Company of Mass. Designed for use in defense plants and for use in emergencies by police, fire, first-aid, rescue, demolition squads, etc., this Civilian Defense Light (Type CDU) is powered by a heavy duty rechargeable long life battery. A special Carpenter 2-filament bulb furnishes work or rescue light for *80 continuous hours* on one filament—much longer if used intermittently—or a higher power floodlight for 20 consecutive hours on the second filament. A substitute reflector provides a powerful mile range searchlight, when needed. The light has a shatterproof lens.

The unit is perfectly balanced and easy to handle. Center of gravity is always directly under the hand. Rugged case of cast aluminum. For details, use the coupon.

PORTABLE RADIATION METER

AN IMPROVED, Portable Radiation Survey Meter (Cutie Pie) incorporating a number of new features is announced by Tracerlab, Inc., of Massachusetts. This instrument is particularly useful for measuring beta and gamma radiation in "hot" laboratories handling levels of radioactivity of the order of millicuries. Uses include making spot checks of the amount of radiation from each experimental setup where radioisotopes are used; monitoring storage and shipping containers; and also for measuring roentgen dosage rates from X-rays of energies as low as 50 KV.

A new circuit design permits extremely stable operation and a large reduction in the time constant which is now only 1.5 seconds on all ranges. Calibration accuracy is $\pm 10\%$ of full scale and is maintained throughout the specified battery life of approximately 800 hours.

It is provided with three full scale ranges of 15, 150 and 1500 mr/hr to give quick and convenient measurements of relatively high radiation dosage rates. The currently accepted "tolerance" dosage of 7.50 mr/hr for a 40-hour week falls at exactly mid scale of the meter on the lowest range. The small size and gun-shaped construction of the instrument makes it especially convenient for getting into inaccessible places. For details, send in the coupon.

NEW FILTER MASK

THE Goggle Parts Company of Cleveland, Ohio has announced a new improved product—The Flex-a-Foam filter mask for protection against non-toxic nuisance dusts. Features of the new mask are that it is light, comfortable and smartly-styled.

The mask weighs only one ounce, and is extremely simple in construction, consisting of only four interlocking parts. The filter is a honeycomb construction of whipped foam latex ventilated by hundreds of tiny interconnecting cells that allow the passage of air but keep out non-toxic nuisance dusts as small as 1/25000 of an inch. Inner and outer frames are of DuPont's new polythene plastic so flexible they adjust themselves to the contours of any face, yet so strong they're indestructible in normal usage. Flex-a-Foam's headbands are molded of natural rubber of a non-toxic, non-irritating quality. All parts can be sterilized by washing in warm, soapy water and immersing in a mild formaldehyde solution. In addition to industrial uses, the new mask is suitable for hay-fever sufferers and to protect from household dusts. For details, use the coupon.

The Eyes

(Continued from page 70)

towels, running hot water, soap, and clean hands, as well as the avoidance of personal contact are indicated to control eye diseases among industrial workers. All cases of irritated, red, tearing, or secreting eyes should be reported to the medical department, or referred to a physician. Some of the most difficult cases are those with latent diseased conditions, evidence of which is not suspected or seen unless a careful medical history is taken and a careful physical examination is made. A latent case of trachoma may be lighted up by a slight contusion of the eyelids. An actual infective condition may develop requiring the loss of much time and the possibility of impairment of vision. The same holds true for a latent syphilitic or tuberculous condition, as interstitial keratitis, or chorioretinitis. The traumatized eye complicated by an infection, such as an abscessed tooth or diseased tonsils, or one involving the gastrointestinal or urinary tracts, may be the site of an active secondary infection and be sufficiently damaged to seriously impair the eyesight.

Better Training

(From page 65)

provide training for their industrial physicians?"

2. "I know of no medical school which does not have in its curriculum a course in tropical medicine. I likewise know of but few which have an adequate chair of industrial medicine, where interested students may elect to obtain sound training."

3. "I know of no medical school where an industry or associations of mutually interested industries have provided for themselves research and training facilities in industrial medicine."

Dr. Johnson praised the "far-sighted approach" of the Cadillac Division of General Motors. "Their desire," he declared, "for well-trained and capable industrial physicians has led them to obtain approval by the American Medical Association for practical experience gained in their dispensary toward internship in industrial medicine. These students, upon completing medical school, apply for this combined residency, wherein during two years they spend alternating six months' periods in an accepted hospital and in the Cadillac dispensary where some remuneration is provided.

"Certainly men so trained," he added, "have a background and a vision which equips them for a lifetime specialty in industrial medicine."

Dr. Johnson also pointed out that the belief that "the older worker is more of an accident risk than the younger is not justified by fact." A study has shown, he said, that of 26,000 employees in four plants, "the accident rate was higher for younger workers in terms of frequency. . . . The rates for men between the ages of 40 and 54 were only about two-thirds as high as for those under 21, and about the same as for those between 21 and 29."

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SAFETY GOGGLE

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AUGUST, 1951

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- ☐ Safety Directory — 24
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- ☐ Hand Pumps — 33
- ☐ Respirators — 35
- ☐ Welders Protection — 36
- ☐ Lens Cleaning Station — 37
- ☐ Vehicle Safety Tanks — 41
- ☐ Respirators — 43
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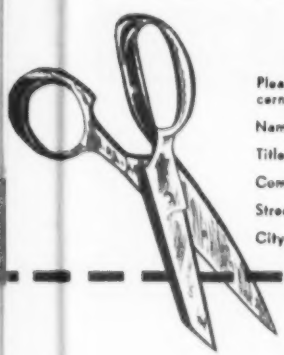
- ☐ Rubber Footwear — 47
- ☐ Resuscitators — 49
- ☐ Oil Absorbent — 50
- ☐ Safety Chisel Grip — 51
- ☐ Non-Slip Floor Polish — 53
- ☐ Power Press Protection — 54
- ☐ Dry Chemical System — 55
- ☐ Adhesive Compress — 56
- ☐ Resuscitators — 57
- ☐ Women's Safety Caps — 58
- ☐ Reinforced Coated Gloves — 59
- ☐ Skin Protection — 61
- ☐ Coated Work Gloves — 63
- ☐ Plastic Goggle — 64
- ☐ Safety Signs — 64
- ☐ Slip-Resistant Floor Finish — 65
- ☐ Burn Treatment — 69
- ☐ Plastic Goggle — 69
- ☐ Gripper Slings — 70
- ☐ Dust Masks — 70
- ☐ Face Shield — 75
- ☐ Safety Press Feeders — 75
- ☐ Air-Fed Hood — Inside Back Cover
- ☐ Antiseptic — Back Cover



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Index to Advertisers and their Agencies

American Optical Co., *Sutherland-Abbott, Boston* — Inside Front Cover
American Safety Tank Co., *R. J. Potts-Calkins & Holden, Kansas City* — 41
Ansul Chemical Co., *J. A. Cormack, Advertising, Milwaukee* — 12

Bausch & Lomb Optical Co., *Ed Wolff & Associates, Rochester* — 11
Brady Co., W. H., *Ervin R. Abramson Adv., Milwaukee* — 64
Breck, Inc., John H., *Charles Sheldon, Springfield* — 61

Cambridge Wire Cloth Co., *Emery Advertising Corp., Baltimore* — 70
Carbisulphoil Co., *Tracy-Locke Co., Inc., Dallas* — 69
Chic Maid Hat Mfg. Co., Inc., *Armand S. Weill Co., Inc., Buffalo* — 58
Chicago Eye Shield Co., *Reincke, Meyer & Finn, Chicago* — Inside Back Cover
C-O-Two Fire Equipment Co., *G. M. Basford Co., New York* — 31
Cover, H. S., *Jerry Bryant Advertising Agency, Chicago* — 43

Edmont Mfg. Co., *Mumm, Mullay & Nichols, Inc., Columbus* — 59
E. & J. Mfg. Co. — 49
Emerson Co., J. H., *Copley Advertising Agency, Inc., Boston* — 57

Mild Floor Machine Co., *Cruttenden & Eger, Chicago* — 45
Millyard Sales Co., *Phillips-Reick-Fardon, Kansas City* — 65
Mood Rubber Co., *Henry A. Loudin Advertising, Inc., Boston* — 63
Huntington Laboratories, Inc., *Bonsib Advertising Agency, Fort Wayne* — 53
Hyman, Westcott & Dunning, Inc. — Back Cover
Hy-Test Div., International Shoe Co., *Westheimer and Block, St. Louis* — 1

Junkin Safety Appliance Co., Inc., *Person & Huff Adv. Agency, Louisville* — 54

Keefe & Co. — 55

Legge Co., Inc., Walter G., *J. M. Kesslinger & Associates, Newark* — 7
Lehigh Safety Shoe Co., *Frederick-Clinton Co., Inc., New York* — 9
Littell Machine Co., F. J., *Vernon S. Weiler, Chicago* — 75

Martindale Electric Co., *Kenneth H. Kalpien, Cleveland* — 70
Medical Supply Co., *Howard H. Monk & Associates, Rockford* — 56
Mine Safety Appliances Co., *Ketchum, MacLeod & Grove, Inc., Pittsburgh* — 2

Pittsburgh Plate Glass Co., *Mason, Inc., Detroit* — 5

Quabaug Rubber Co. — 13

Rose Mfg. Co., *Gray & Co., Denver* — 51

Scott Aviation Corp., *Melvin F. Hall Advertising Agency, Buffalo* — 35
Sellstrom Mfg. Co., *Scantlin Advertising Agency, Chicago* — 36
Silicone Paper Co. of America, Inc., *Package Adv. Co., New York* — 3
Stonehouse Signs, Inc., *Walter DuBree Advertising Agency, Los Angeles* — 6
Surty Mfg. Co., Inc., The — 46

Tamms Industries, Inc., *Frederick, Frans and MacGowan, Chicago* — 50
Tokheim Oil Tank and Pump Co., *Jones & Taylor and Associates, South Bend* — 33

United States Rubber Co., *Beacon Falls, Conn.* — 47
United States Safety Service Co., *Phillips-Reick-Fardon, Kansas City* — 64, 69, 75

Wagner Sign Service, Inc., *Wendt Advertising Agency, Toledo* — 14
Wilkins Co., Inc., The, *Laux Advertising, Inc., Ithaca* — 37

Picture of a Free Man!

thanks to

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FREE ***from weighty, rigid hoods!***

CESCO's #600 AIR-FED HOOD is made of an extremely lightweight, highly flexible rubberized fabric. This, plus its complete adjustability, provides unequalled comfort and full freedom of movement.

FREE ***from hoods with narrow, fixed vision!***

CESCO's #600 has an extra-large, clear plastic window for extreme, wide angle vision. In addition, its adjustable plastic headband is mounted to the hood on a friction swivel to allow full vision up or down as the user moves his head.

FREE ***from toxic dusts!***

Air fed into the #600 HOOD is tubed around to each side of the face. Here it is diffused and filtered thru cloth bags so that a constant supply of clean, cool, fresh air is maintained directly in the respiratory zone. Further protection is given by a soft cotton bib which acts as a baffle to keep out dust. It zips out for cleaning.

Cesco's New #600 AIR-FED HOOD. *Approved by* U.S. BUREAU OF MINES *under "Class C" Respirator for use where toxic dust and fumes are encountered. Operating pressure 5 to 9 pounds.*

FREE ***from harmful abrasive particles!*** • #600's lightweight, but tough, fabric protects the head, shoulders, chest and back against flying particles. It is also waterproof and acid-resistant. The sponge-rubber mounted, plastic window withstands abrasion, and its large area gives it excellent impact resistance.

FREE ***from fatiguing, noisy air inlets!*** • #600's carefully thought-out design and construction brings the incoming air into the hood almost noiselessly.

FREE ***to work better, faster, more safely!*** • The exclusive advantages of CESCO's new #600 AIR-FED HOOD are bound to increase worker comfort, safety, and output. It is ideal for lead discing and other grinding operations, light sandblasting, paint spraying, etc. Write for more detailed information or see your Cesco Distributor.

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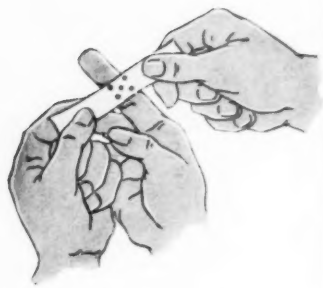

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Physicians have used 'Mercurochrome' for more than 28 years.

Be sure to include 'Mercurochrome' in your first aid supplies.

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